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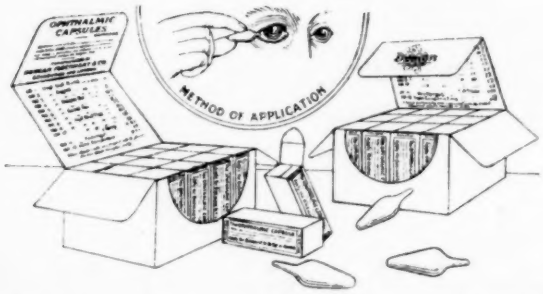

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An Address
ON THE
NORMAL STOMACH.

Read before the Radiological Section of the Congress of Radiology and Physiotherapy, London, 1922,

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THE study of pathology should naturally be prefaced by the study of both anatomy and physiology, and these two should be so closely knit that the borderline cannot be distinguished. The introduction of the opaque meal opened up such obvious paths of usefulness in disease that the attention of all workers was at once focussed on diseased subjects; the result was that the normal subject received comparatively scant attention, except when suffering from gastric symptoms. Rapid strides were at once made in the detection of cases suitable for surgical treatment, and even at the present day reports go up to the effect that "no pathology is present," apparently leaving out of account the possibility that disordered physiology may be the cause of symptoms.

THE X RAY SCREEN AND THE TEXT-BOOK PICTURE.

The pictures seen on the fluorescent screen of an opaque meal in the stomach caused us considerable worry in the early days. We could not reconcile the appearances we saw with the anatomical descriptions and pictures on which we had been brought up. It was evident that something was at fault, but nowadays I think that all anatomists realise that what is seen in the X ray department is a true picture of the living, functioning stomach—i.e., that it is the living anatomy that we are seeing and that the old pictures and descriptions were nearly all gross distortions, due either to post-mortem changes or to the methods of preparation, particularly of the formalin that was usually employed.

In 1913, during a heated controversy in the *British Medical Journal*, an eminent surgeon and others asserted that the stomach was normally a bilocular organ. I thought it would help to crystallise my own ideas if I attempted to reconstruct the actual shape of the normal stomach from the shadows seen in the X ray room. With this object in view, I undertook a series of observations, as the result of which I made small plasticine models of what I believed to be the normal stomach. Later these plasticine models were reproduced life-size. The conception of the normal stomach was extremely difficult to formulate; I did not appreciate the fact that the stomach might vary within very wide limits and yet be perfectly normal. It was described by radiologists as J-shaped, fish-hook shaped, cow's-horn shaped, and various other shapes, but it was not realised that even grosser changes than are suggested by these names may still lie within the normal. The models* therefore were made not as actual reproductions of a definite normal stomach, but to give a working basis on which the teacher could build up his description of a normal stomach.

It would have saved me, personally, much worry had I started X ray work on the stomach without a fixed idea that "the stomach of the adult is retort shaped, is 12 inches long, 5 inches wide, its walls about 1/5 of an inch thick, and its capacity 40 ounces." (Clinical lecture by leading surgeon published in 1914.) One was constantly thinking, unconsciously perhaps, of this description, and in an indefinite way connecting this conception with the test-tube experiments of the physiology laboratories. Looking back, it is as if the whole anatomical and physiological canvas, so far as the alimentary tract is concerned, had been painted in by cubists and futurists; perhaps those who created the picture understood, but to me, as a student, they merely conveyed a caricature that prejudiced all observations, and made it exceedingly difficult to grasp the essential fundamental fact that the stomach is a living muscle in tubular form—that it is not a cast-iron retort, but one of the most flexible and sensitive muscles in the human body, and that, in consequence, its shape and its size are such that the descriptive anatomy I have quoted is most misleading. Apart from being hopelessly incorrect, it presupposes that a normal stomach cannot alter its shape and size without becoming an abnormal organ. The alterations possible in the shape and size of the normal stomach are many, and, apart from displacements such as by collections of air in intestines, they are almost all due to variations in tonic action.

* These models are housed at the Museum of the Royal College of Surgeons of England.

DECEPTIVE CASES.

The following cases serve to illustrate the disconcerting early experiences with which many workers are now familiar.

1. A woman had an apparently normal "J"-shaped stomach extending to the umbilicus. While I watched, a door banged and startled her, with the immediate result that the lower border of the stomach dropped nearly three inches—i.e., tone was suddenly relaxed, and all the food descended into the lowest part.

2. Another patient whose stomach was just slightly dropped (atonic) was under examination. Without any warning or apparent cause, the lower border dropped several inches, and within a few seconds the patient fainted and collapsed among the apparatus. Time and again since then this sudden drop has warned me of what was about to happen, and a fall has been averted.

3. A nervous subject was found to have a stomach that came several inches below the umbilicus. Examined on the second day, when the patient was less apprehensive, the stomach was found quite normal.

Dr. J. M. W. Morison recently examined three students and found quite normal stomachs of the "J" and "cow-horn" types. He had occasion to examine the same students again a few days ago, and not one of them was of the so-called normal type, various stages of atony being present, completely altering the general outline. This is a rather extreme case of variation and may have been due to the abnormally hot weather.

4. A normal stomach dropped an inch or more when the patient smelt something which, to him, was nauseating. Asafœtida and various other disgusting substances were tried, and the reaction seemed to be proportionate to the revulsion of the patient.

5. Conversely the pleasant things of the table tended to contraction of the stomach, even to the point of hypertonicity when the organ was empty, or nearly so. My experiments were made with savouries, liquors, sweets, &c., and the results were variable, but all in the same direction, again depending apparently on the patient's appreciation or otherwise. I occasionally obtained quite a definite reaction in hospital patients by mention of half a pint of beer.

6. A surgeon told me of a patient whose abdomen was opened and the stomach wall was found to be so thick that it was almost impossible to get the organ out of the abdomen to manipulate it. A few days later the patient died and this firmly-contracted gastric muscle was found, in the post-mortem room, as a thin-walled blotting-paper stomach.

TONUS OF THE STOMACH.

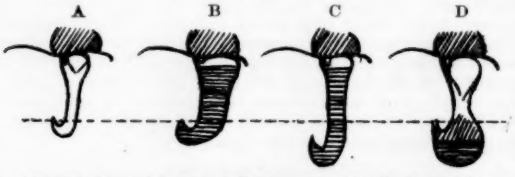
Now these various appearances, the dropped and the abnormally contracted stomachs, are, in my view, perfectly normal; they are merely variations in the tone of the stomach wall, and may, or may not be, transitory; they are not due to any intrinsic change in the muscle itself. They depend entirely on the tonus of the gastric muscle, a function that can only be studied in the living subject. The term "atony" itself is a misapplication—what we mean when we speak of atony, is impairment of tone, not total absence of tone—a condition of muscle that, so far as I know, is inconsistent with a living muscle cell.

From the radiological standpoint this tonic action that plays so important a part in varying the appearances is an entirely automatic contraction of the muscle which compensates and counteracts the effect of gravity on the stomach contents. We are certainly

not dealing with a purely elastic sac. Literally, tone should be interpreted as mechanical tension but the physiologists have the greatest difficulty in arriving at a definition.

In 1888 Hughes Bennet[1] defined reflex muscular rigidity as that "slight constant tension which is characteristic of healthy muscle." He and all other writers about that time infer that it is largely an automatic attribute of muscle, a suggestion fully borne

FIG. 1.



A = Empty stomach. B = Full stomach. C = Gastroptosis. D = Atony. The oblique hatched lines indicate retained food, not seen by X rays. Above this is the collapsed wall where the stomach is stretched over the kidney into which the air space enters, giving a pyriform shape to the air cap.
Note the length of the lesser curvature in the gastroptosis as compared with the other diagrams.

out by Alvarez in his recent work, the Mechanism of the Digestive Tract, 1922. Matula, writing in 1912,[2] says that

"by reflex tonus is understood in this paper that weak persistent activity of the musculature which is excited by stimuli continually reaching the body. I find it necessary to state this although perhaps obvious, for the term tonus is certainly one of the most misused terms in physiology. Under it each writer understands something different, if indeed he is in a position to supply any sharp definition at all of the conception."

Little wonder, then, if the radiologist, who sees merely the results of muscular action, is at a loss to formulate a definition of the causes that lead to the change in the shadow picture.

Sherrington,[3] in dealing with the subject, says that

"The notion of tension is attached as a committant of shortening and supposes that with greater shortening there must run increased tension. But it has become clear that skeletal muscle in postural reflex contraction may alter the lengths of its fibres very considerably with little or no change in the tension the muscle exerts."

Speaking of the bladder, he continues:—

"We may apply the term *posture* to this property . . . . by virtue of which it solves the problem of acting as a reservoir for quantities of fluid of very varying volume from one occasion to another without allowing the intravesical pressure to attain the reflex stimulus threshold height with one particular fluid quantity only. But if we do we must attempt a definition of posture in order that the term may be clear. . . . . Active posture largely compasses the counteraction of those effects which gravitation, &c., produce in the dead body."

Sherrington regards tone as "posture," and says:—

"Active posture may be described as those reactions in which the configuration of the body and its parts is, in spite of forces tending to disturb them, preserved by the activity of contractile tissues, these tissues then functioning statically. The rôle of muscle as an executant of movements is so striking that its office in preventing movement and displacement is somewhat overlooked. When a movement, whether active or passive, has brought about a change in the configuration of a limb—e.g., by flexing one of the joints—an important function of the musculature may be to maintain the new configuration—the posture. In doing this the muscle does not make but *prevents* movement; it then acts statically and, though in a state of contraction, it does no mechanical work, whether the tension it develops . . . . be great or small."

TONUS AN ANTAGONISTIC FORCE.

Sherrington, therefore, describes tonus as a posture of muscle which is concerned with the prevention of movement. Tonus or posture in a skeletal muscle is a counterpart to balance the contraction of the antagonistic muscles, and it seems to me that what we mean by tone in the stomach muscle is exactly the same thing, but that instead of balancing a muscular antagonist it balances the action of gravity on the stomach contents, maintaining the stomach in approximately the same posture in spite of the action of gravity, and other forces, including compensation for diaphragmatic movement. In the upright position it is called into play to maintain the tubular form of the organ, otherwise the food would all drop to the lowest part and we should be conscious of the weight in the lower part of the abdomen, with a consequent dragging sensation. I think we all of us recognise the feeling of the dropping of the stomach that we experienced as we waited outside the closed door for our turn for the viva voce; or perhaps even more poignantly in the minutes of waiting for the pistol for the starting of a race. The sense of the weight of the food in the stomach is almost invariably associated with loss of tone, but the converse is not always true, for the loss of tone is not always associated with the sense of weight, because patients become accustomed to the alteration if it persists for a time.

Unfortunately, the opaque meal is not counted as a luxury by most patients, and it is probably largely due to this lack of appreciation that a certain degree of atony is the rule rather than the exception even in healthy subjects. Moreover, the actual weight of the food, in relation to its bulk, as compared with ordinary food, is considerable and the slightest degree of atony is at once exaggerated by it. I presume this is why physicians order light foods! In the early days we used an opaque meal of bread and milk with comparatively little bismuth, and we saw far more "normal" stomachs than we do nowadays with the denser opaque food that we employ. Looking through a large number of recent cases with my partner, Dr. Morison, we were much struck with the very small number of "normals" we came across; ptosis and atony of greater or lesser degree were the rule.

GASTROPTOSIS DISTINCT FROM ATONY.

Gastroptosis must be differentiated from atony. In both, the lower border of the stomach is much dropped, but in the former the tonic action is unimpaired, and consequently the food is held up in tubular form, whereas in atony the food drops to the lowest part, leaving the middle collapsed and the fundus filled with air. The lesser curvature is lengthened at least proportionately to the general increase in the length of the stomach. Generally speaking, gastroptosis is normal in the long thin subject; conversely the small hypertonic and well-contracted stomach is usually found in the short stout type of man. Gastroptosis, per se, is apparently not of significance, but when the duodenum remains in its normal high position, a drag is produced on the attachments which may give rise to symptoms suggestive of duodenal trouble. Atony, on the other hand, seldom causes drag on the duodenum, because the lesser curvature is not lengthened and consequently the duodenum is not dragged upon; but the pylorus is very high compared with the lowest part of the stomach, and there is mechanical disability which interferes with the emptying, quite apart from any suggestion of obstruction.

The tonic action stabilises the stomach, holds it in posture, and counteracts the diaphragmatic movement so perfectly that the lower border hardly moves, even in forced respiration. Of course, the fundus moves with the diaphragm in respiration, but the lower border does not move at all in the healthy normal stomach—i.e., there is a compensatory mechanism, a "concertina" action, that automatically keeps the lower part of the stomach at rest; even with forced respiration there is little movement. I believe that this "concertina" action is of considerable diagnostic importance in the gauging of the degree of tonicity present. It is a function dependent on, and probably identical with, tonic action, and any deficiency or over-efficiency will interfere with it. The result is that when there is slight deficiency of tonic action one can see that the lower border moves with respiration to some extent. Further relaxation interferes still

[1] Brain, 1888.
[2] Pflüger's Archiv, 1912, Bd. xlviii., S. 395.
[3] Brain, 1915, vol. xxxviii.

more, and the lower border of the stomach may have an excursion equal to that of the diaphragm. But in extreme atony the greater curvature of the stomach rests on the contents of the pelvis and is not disturbed by even forced respiration. On the other hand, when tonic action is more marked than usual, the stomach is contracted up and there is not the same scope for this compensatory mechanism. Consequently, some movement is seen, and sometimes, when one meets with a very hypertonic stomach, contracted up to perhaps half its normal size, there may be no trace of this "concertina" action to be seen. In the horizontal position, however, tonic action is no longer called upon and it disappears to a large extent, if not entirely; hence the extraordinary altered shapes resulting from laying the patient on one or other side.

PERISTALSIS.

Peristaltic waves are seen in all normal stomachs; the waves appear to be always present from the time the food enters till the organ is empty, provided there is no reflex factor at work, such as headache or trouble in the appendix region, giving ileal stasis and a referred depression of peristalsis. The waves start opposite the cardiac orifice and sweep along the greater curvature, gaining in force as they approach the pylorus. With the ordinary opaque meal each wave is like its fellows, but, if there are lumps in the food, there may be some inequality in the peristalsis as the result. On the lesser curvature the waves are not seen so high up. When they actually segment the bismuth shadow some distance from the pylorus, the peristalsis is more powerful than normal. It does not necessarily happen that the same stomach exhibits exactly the same character of peristalsis on all occasions; some days the waves may be stronger than others, but on the whole it will be found that they are fairly uniform in character and periodicity—i.e., about three a minute.

Although peristalsis and tonic action are apparently functions of the same muscle fibres, they seem to be quite independent of each other as I showed some 13 years ago.[4] At that time I did not know of the importance of the oblique band, and to-day I believe that this band must be regarded rather as a sling which takes the general weight of the stomach, the function of the circular and longitudinal fibres being similar to those of the skeletal muscles—i.e., *active* to promote peristalsis, and *passive* to maintain posture, or, as Clelland put it many years ago, "the ligamentous action of muscle."

Before passing on I wish once more to impress the fact that the stomach is a living, sensitive, muscular tube and that the models are intended to indicate an average, as a starting-point for teaching purposes.

FUNCTIONS OF GASTRIC MUSCLES.

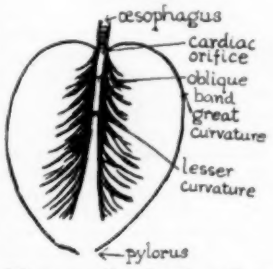
I will now attempt briefly to suggest the functions of the gastric muscles. It is the inner oblique coat, a very incomplete yet definite and powerful layer to which I wish to call your attention. This oblique layer is a band rather than a layer, being a continuation of the circular fibres of the œsophagus, which runs down on either side of the lesser curvature. It is a powerful muscle in itself, spreading out in fan-shape, intermingling with and disappearing in the circular and longitudinal fibres in the lower half of the stomach. Jefferson has pointed out a very interesting fact; in its upper part this oblique band is quite free, and it is not attached to the muscle below it and a probe can be pushed under it freely. This fact I will speak of later.

When Jefferson first dissected out these oblique fibres he was so strongly impressed with them that he thought that one of their functions must be to allow the formation of a channel from the cardia to the pyloric antrum, as described in some mammals.[5] So far as I can see, this is not the case, as fluid seems to pass down the empty stomach in any of the channels formed by the rugæ. The rugæ appear to form distinct channels, definitely and regularly arranged in the long axis of the stomach and readily demonstrable in any case. As a rule, one can count seven channels of this type, and so far as I can determine the fluid takes any of them indiscriminately but naturally preferring those closest to the lesser curvature, as being in the direct line of the action of gravity.

Sherrington describes in general terms the function of the stomach as follows[6]:—

"The musculature of the stomach is now known to function very differently in its different regions, not only in ruminants and birds, but also in the cat, dog, and man. From sphincter antri pylori to pylorus it works as a sort of mill, performing forcible and more or less rhythmic movements, whereas in the fundal portion with its contractile wall it forms a reservoir or hopper whence the mill draws its pabulum for milling. A functional requirement of the fundal reservoir is that it should receive easily and accommodate easily food arriving often in large volume quickly, and that it should do so without ensuance of any large rise of pressure. High pressure in the fundus would mean difficulty of entrance of further food from the œsophagus and the premature falling off of one of the factors essential to appetite, if not the appearance of gastric uneasiness and pain."

FIG. 2.



Diagrammatic drawing (from Jefferson's dissections) showing the stomach opened along the greater curvature, the mucous membrane removed, and the distribution of the oblique band down either side of the lesser curvature.

So far as we can see, however, radioscopically, there is no functional or mechanical division of the stomach, although the general appearances give the impression that Sherrington's hypothesis—i.e., the cardiac end is a reservoir, the pyloric antrum is a mill—is true. Nevertheless, the function of tonicity appears to be distributed over the whole organ; peristalsis, on the other hand, is mainly a function of the pyloric antrum. Moreover, the increased capacity for more food is not solely a function of the cardiac portion but of the whole organ.

Now, as I have said, tonic action and peristalsis seem to be entirely independent of each other, although they are apparently functions of the same muscle. There is now sufficient evidence to suggest very strongly that the function and control of the powerful oblique band are independent of the control of the other coats, and that this oblique band is not essentially connected in its action with the longitudinal and circular coats or with the functions of tonic action and peristalsis. From its appearance, one would expect that this oblique band would act as a sling to take the weight of the contents in the upright position. However, I will lay the facts before you.

In the case of hour-glass contractions of the stomach, spasmodic or otherwise, the deformity seems to be caused by a contraction of a portion, a section, of the circular fibres, that draws the greater curvature in towards the lesser, this being the thicker and more fixed part. The deformity appears to be due solely to the contraction of the section of circular fibres involved. I see no indication that the oblique band has anything whatever to do with this contraction. In atony, as I have said, the length of the lesser curvature (along which this oblique band lies) is maintained—it is not stretched to any extent; the dropping of the stomach level is almost entirely due to the increase in the greater curvature—i.e., the general tone of the gastric muscle is affected, and the increase in the size of stomach is brought about by thinning out of the greater curvature while the lesser curvature hardly alters at all. The increase in the greater curvature is quite disproportionate and very striking. In gastroptosis, on the other hand, there is a marked increase in the length of the lesser curvature (the oblique band) and a more or less proportionate

[4] Proc. Roy. Soc. Med., 1909, p. 9.
[5] Journal of Anatomy and Physiology, 1915, p. 165.
[6] Brain, 1915, vol. xxxviii., p. 218.

increase in the greater curvature, there is certainly not the same discrepancy. More often than not one finds that atony and gastroptosis are both present in the same subject, but the condition of the lesser curvature in uncomplicated cases of these two conditions is the point I wish you to bear in mind.

THE "CUP AND SPILL" STOMACH.

There is another picture of the normal stomach which has puzzled me greatly for many years, and I could not explain it. I called it the "cup and spill" type; the food collects in the upper part of the stomach in a cup, and spills over into the lower part. Quite frequently this appearance is transitory and passes off in a few minutes, and the organ becomes quite normal. Dr. Morison succeeded in producing the condition accidentally when working on the diaphragm. He found that when he inflated the stomach with CO_2, the ballooning of the cardiac end and the consequent raising of the diaphragm level was accompanied by the formation of the "cup and spill" type in a stomach which was "normal" before inflation.

I believe that the explanation of this curious variation of the normal is entirely due to the action of these oblique fibres, and that these fibres, contracting or remaining in posture, while the other muscles of the stomach wall relax, produces a hitching up and consequent bagging of the upper part of the stomach. It is as if these fibres formed a band, and, in the case of the stomach distended with CO_2, the band itself does not alter, but the general muscle wall above the band—i.e., the circular fibres chiefly—is thinned out and forms the cup of the "cup and spill" stomach. When one remembers that this powerful oblique band is unattached to the circular fibres in its upper part, such an explanation is even more probable than if it was firmly attached to the lesser curvature in the upper part. Moreover, the only comparatively fixed portion of the stomach is the cardiac orifice, around which these two bands meet at their upper end. There is ample room for rotation of the stomach which allows the very varied appearances of the "cup and spill" type, which may empty forwards or laterally to either side.

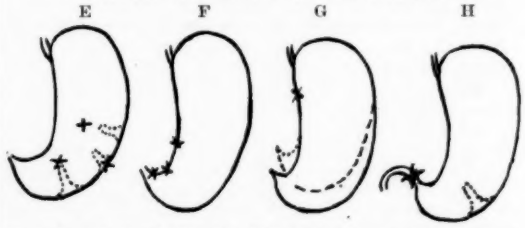
The text-books of anatomy tell us that the nerve-supply of the stomach is through the terminal branches of the two pneumogastrics with the addition of various offsets from the sympathetic; that the left supplies the anterior wall, while the right supplies the posterior wall. It is therefore possible that the two bands of oblique muscle that come down on either side of the stomach are just as independent of each other as are the muscles of the two sides of the face—if they are independent it would help to explain the fact that some of these "cup and spill" stomachs empty to the right, others to the left, while the greater number empty forwards.

ELECTRICAL STIMULATION OF THE STOMACH MUSCLE.

If my deductions are correct, it follows that there is prima facie evidence to suggest very strongly that this oblique bundle can act independently of the other muscles of the stomach with which its terminal fibres are so intimately entangled. With the object of testing these deductions, I went to the operating theatre, and, by the courtesy of Mr. E. D. Telford, was able to carry out a series of electrical tests. The case selected was a man in whom we had diagnosed a duodenal ulcer, but he was otherwise in good health. A rather large incision was made, and the stomach was exposed. The anæsthesia was as light as possible. The indeferent electrode was placed under the patient's back, and an electrode was applied directly to various points on the stomach wall. At first, the interrupted galvanic current was used, but there was no response. We then tried an interrupted sinusoidal current and almost at once obtained contractions of gastric muscle. The failure of the galvanic current may have been due to the anæsthesia being too deep, but the success of the interrupted sinusoidal in stimulating contractions was very marked. Probably contractions would also be obtained with an interrupted faradic current.

We found that stimulation of the anterior wall or of the greater curvature, at any point, produced a slow contraction of the circular fibres, forming an hour-glass appearance, but there was no suggestion of a contraction of either the longitudinal fibres or of the oblique band, the greater curvature was pulled in towards the lesser in a definite incisura—i.e., an hour-glass contraction was formed. Stimulation of the lesser curvature in the lower two-thirds produced very definite retching, but there was no recognisable contraction of any of the bands of fibres—it was more a reflex contraction of the abdominal wall and diaphragm, so far as we could see. Stimulation near the cardiac end of the lesser curvature, however, produced a definite contraction; the stomach, which was bulging through the wound, was drawn up into the abdomen, a movement that appeared to be due to the action of the oblique band acting by itself. This observation was repeated several times. There was no tendency towards retching when stimulation was applied to the lesser curvature in the upper third, and there was no apparent contraction of the circular fibres and certainly no localised contraction such as was produced by the stimulation of the anterior wall of the stomach and the greater curvature, but the way in which the stomach was drawn up into the wound appeared to be the effect of the action of the oblique band acting by itself. It seems highly probable, therefore, that the circular and oblique fibres can act independently.

FIG. 3.—*Diagrams Illustrating the Effect of Direct Electrical Stimulation of Gastric Muscles.*



The point of stimulation is indicated by the cross, and the effect is shown by the dotted line.
E = Stimulation of points on anterior wall and greater curvature caused the formation of an incisura on the greater curvature (not on the lesser, probably owing to the greater thickness of its wall).
F = Stimulation of the lesser curvature on the lower third, produced no recognisable contraction of the gastric muscle but marked twitching was noted.
G = Stimulation of the lesser curvature high up caused the stomach to be drawn up into the wound, probably by the action of the oblique fibres contracting by themselves.
H = Stimulation of the peritoneal surface of the duodenal ulcer produced no local contraction but an incisura was formed on the greater curvature of the stomach.

One other point of stimulation was tried—namely, the peritoneal surface of the duodenal ulcer, which was present on the anterior wall of the first part. Stimulation at this point produced no suggestion of a local contraction of the duodenum, but a definite incisura was formed about the junction of the middle and lower thirds of the stomach—i.e., an hour-glass contraction of the stomach was formed as the result of the stimulation of the duodenal ulcer. This is exactly what one would expect from the radiographic examination, as the presence of a spasmodic hour-glass contraction of the stomach is found in a very large proportion of duodenal cases, in fact such a condition always makes one suspect the presence of a duodenal ulcer.

It is interesting to note that we obtained the contraction of the circular fibres both by direct stimulation and, apparently, by reflex stimulation from the duodenum.

The manner in which the reactions took place is also interesting. The response was not immediate, and took, perhaps, three seconds to show any change, and in about ten seconds the contraction was complete. Relaxation took about the same time. At no period of the examination did we succeed in obtaining any indication of peristaltic contraction.

This line of investigation is evidently one that should be followed up, but it is more for the physiologists than for the radiologists. Some combined work between physiologists, anatomists, and radiologists would probably yield very interesting results, and, perhaps, in time, lead to the unveiling of the very perplexing symptoms that make the diagnosis of disordered physiology in the abdomen the most difficult in the whole realm of medicine; it is still largely a *terra incognita* and a haunt of the empirical dealer in nostrums.

A Plea

FOR THE STUDY OF

BIOLOGY IN RELATION TO PUBLIC HEALTH.

Delivered at the Annual Meeting of the British Medical Association (Public Health Section) in Glasgow on July 26th

BY A. K. CHALMERS, M.D. GLASG., D.P.H. CAMB.,
MEDICAL OFFICER OF HEALTH, GLASGOW;
PRESIDENT OF THE SECTION.

A DESIRE to review the history of medicine in its preventive aspects during the 34 years which have come and gone since last our Association met in Glasgow is almost inevitable. But that it can be done adequately in the time at my disposal would require a power of focussing to which I claim no qualification. My purpose rather is to indicate a few contrasts; to ask how far the years between have established the views of our predecessors; whether the horizon has lifted and disclosed objectives hidden from them; most of all, to ask whether the same spirit of service which inspired our predecessors remains with us who aspire to follow them. A comparison of the record of subjects discussed at the former meeting with those of the present might alone supply the answers.

PUBLIC HEALTH 30 YEARS AGO: A CONTRAST.

Illustrations of the contrasts are readily found. The mean population of Scotland during the 80's decade was 3,880,610; at the last Census it was fully a million more. In the former period the average death-rate was 19 per 1000. Had this rate obtained in recent years we should have had almost 20,000 more deaths annually than were registered during the period 1916–20, although these included periods of pandemic influenza of great intensity.

The large towns of Scotland have now (1916–20) a lower average annual death-rate (16·34 per 1000) than had the rural districts and smaller town areas in the later 80's (17·28). The infant mortality during the 80's rose from 112 per 1000 births in 1881 to 130 in 1890; during the last ten years the highest rate was 126 in 1915, in 1920 it fell to 92, and was 97 and 99·8 in 1916 and 1918. But the birth-rate has also fallen from an average of 32 during the 80's to 25·4 in the years 1911–15 and 22·7 in 1916–20. One result of this is that already by 1911 the proportion of the population over 15 had increased from 63 to almost 68 per cent. In other words, that portion of the population which has a steadily although at first slowly increasing death-rate, is gradually increasing in volume, so that it now forms fully two-thirds of the whole.

Further contrasts may be drawn from the field of epidemic diseases. I need not recall the shrinkage in what were then called the major infections which has run parallel with these changes. The recurring prevalences of typhus fever which formed so marked a feature of the epidemic history of the middle of last century had largely ceased by the 80's decade, but even so it caused about 90 deaths annually in the years 1886–90; while in recent years (1916–20) the deaths averaged only one-tenth of that number, notwithstanding the great prevalence of the disease in Eastern Europe and Russia, and in the Balkans during the war years and afterwards, and the many migrations both of soldiers and civilians determined by the war. Again, the deaths from enteric fever, which averaged 765 annually in the period 1886–90, and in three earlier years of the decade had exceeded 1000, now average only just over 100 annually (109); in the former period over 7000 deaths were on an average ascribed annually to pulmonary tuberculosis—now less than 5000. Scarlet fever is less fatal, but its prevalence oscillates through long intervals, while measles and whooping-cough seem unaffected by any measures hitherto undertaken for their control.

Passing for a moment from results to machinery and equipment, there was in those days no county sanitation—no general provision of hospital accommodation for infectious diseases—a limitation, indeed, of the term "infectious disease" to the acute specific fevers and exanthemata. No Notification Act of general application, bacteriology was in its infancy, vaccine and serum therapy had to wait some years before their unrollment began. The part played by insects in the spread of disease was almost unsuspected.

The first Public Health Act for Scotland had already been 21 years on the Statute Book, but the sanitary enfranchisement of the rural populations was not yet accomplished, while the burghs were struggling with conditions for which the general Act provided no adequate remedy. So sanitary legislation formed the theme of the President, Sir Henry Littlejohn, and the late Sheriff Spens urged the creation of a Minister of Health. County sanitation became possible with the passing of the Local Government (Scotland) Act of 1889, and a Burgh Police and Public Health Act in 1892 gave a new stimulus to the sanitation of towns. The Housing Act of 1890 had barely begun to form round the nuclei supplied by the Torrens, Shaftesbury and Cross Acts and some local ones of earlier years.

In another direction the horizon was limited by our insular position. Exotic disease in the form of cholera, it is true, had reached our shores so recently as 1866, and although the Venice Convention dated from 1897, it was not until 1900 that a limited outbreak of plague among our own people startled us out of our insular complacency and helped to stimulate the formation of port local authorities as a means of protecting our shores against sea-borne disease. More than all and of special importance in view of the future, preventive medicine broke through the old barrier of insanitary surroundings and insisted on regarding the individual as himself the contributor to much of the disease which imperils our well-being, and brought venereal disease within the purview of administrative action.

THE FRUITS OF ADMINISTRATIVE ACTION.

One field after another has thus been brought within the scope of regulated effort, and may claim some consideration at least in a review of the causes of the decline in the death-rate which has gone on contemporaneously with their application to administrative purposes. But when we endeavour to assess the precise value of any individual factor when many are operating, error may readily occur. Legislation and administrative effort are valuable adjuncts, but they are not the only factors which control disease. How, for example, are we to explain one of the profoundest problems in the history of tuberculosis in this country?—I mean the sudden change in the direction of the death-rate which took place in Scotland in the middle of the 70's. For fully a decade before the last meeting of the Association here, the tuberculosis death-rate was undergoing reduction at a rate which is not now equalled. No concerted administrative action was being directed against its prevalence—I do not, of course, forget the early clearance schemes, but they were wholly, I think, confined to the towns whereas the fall was general—and the subject does not, I think, occur in the published record of the former meeting. On a former occasion elsewhere [1] I endeavoured to associate the antecedent increase in the rate with the migration to

[1] A Page in the Natural History of Tuberculosis, Public Health, November, 1913.

the towns, which was so marked in Scotland in the middle of last century, and its subsequent fall with the growth of a locally born population endowed with greater resistance to local conditions than their immigrant parents, but the lack of information regarding the actual proportion of in-comers among the population somewhat altered the apparent significance of the contrast.

If I seem to labour the point it is for the purpose of asking whether, in contemplating the superstructure we erect for public health purposes, we do not too often forget that Nature is silently at work often doing better for us than we know, and that our efforts will best be directed towards the control of disease when we know more of Nature's methods of adapting life to the varied conditions under which it exists. For Nature is a skilful nurse and our best work will be done by a close study of her methods. Tuberculosis and infant mortality, indeed, form two illustrations of the play of biological forces but dimly apprehended. To these we might well add a third in the decline of the birth-rate, and the common warning I think they give is against a too ready acceptance of the view that their decline is to be ascribed solely to administrative action on the one hand, or acts of volition, sometimes called prudential, on the other.

In the first decade of a falling death-rate it was still too early to see that a process akin to geological denudation was in progress, and it was not, indeed, until the present century had begun that a high infant mortality-rate was disclosed as at once persistent and refractory. So also with regard to tuberculosis, the discovery of the bacillus was still too recent for frank recognition of its rôle as an infecting agent to influence action for the prevention of its spread. But in connexion with both it is worth remembering that the fall in the general death-rate coincided with the growth of our foreign meat imports, and that the fall in the infant death-rate of this century is occurring among the children of those who grew up under the improved food conditions which these imports tended to make general.

THE NEW HORIZON.

Infant Mortality.—Since the present century began we have had in succession organised movements for the welfare of mothers and children, for the reduction of tuberculosis, and the treatment of venereal disease. All these reach down by separate channels to the roots of our social structure, but each also presents aspects which are biological before they are social. It is the recognition of this factor as influencing the whole field of preventive medicine that I think fills the future with hope. Let one but try to envisage the bio-chemical changes which set in directly the newly-born child draws its first breath and produce within a few days closure of the ductus arteriosus, and then ask himself whether Nature's alchemy is limited to this single and marvellous process by which the circulation becomes adapted to the demands of an air-breathing organism. Here the structural change is concrete and obvious, as is the alteration in physiological function which accompanies and depends on it. And if we ask ourselves regarding the great volume of infant deaths ascribed to immaturity under a diversity of names (prematurity, birth debility, and some others), mainly occurring in the first weeks of post-natal life, contributing about one-third of the total infant death-rate, and distributed with apparent impartiality through every social group, the closed ductus arteriosus may stand as a type of the changes which in failing cause the death of so many newly-born children.

Venereal Disease.—In venereal diseases again biology and disease are curiously intertwined. Treatment centres attract many social and biological types—from the youth, whose early training has failed to develop habits of self-control which should find their beginning in the physiological inhibitions of the nursery; to the habitué, who presents himself with a re-infection many times repeated. If we accept the one as but a reckless adventurer on the sea of desire who wilfully discards the rudder of self-control and abandons himself to the stormwinds of passion, how can we regard the other but as an atavistic "throw-back" to a much earlier civilisation which looked at the marvel of reawakening Nature through the eyes of the phallic worshipper? Superficially, these two men may be regarded as differing only in the degree of freedom with which they permit themselves to follow anti-social practices; in reality, although both are of one generation, from the point of view of social development they are separated by some thousands of years.

Tuberculosis.—I need not in this connexion anticipate the questions which surround the administrative treatment of tuberculosis, as full scope will be afforded for discussion in the Joint Conference with the Tuberculosis Section to be held during our meetings. But this much may be said on the general outlook, that no completely satisfactory explanation has yet been advanced of the change in direction of the death-rate from all forms of tuberculosis which began with some suddenness in the mid-seventies, before schemes for its administrative control were in operation—before, indeed, widespread effort at sanitary reform was in operation beyond the town areas. Yet the fall was general and has been continuous, and in its beginnings at least must have been the expression of causes widely operative and not confined to particular sections of the population. One looks again for a biological explanation, whether it be in a reduced virulence of the organism or in increased resistance of the population as a whole. And it is a tempting hypothesis to regard as one among several factors of wide application the new sources of nitrogenous food-supply then beginning to be widely available by the importation of foreign cattle.

It seems to me that Loeb's investigations into the production of artificial parthenogenesis have opened up an entirely new aspect of the relation of cell life to the salinity of the fluids in which it is bathed, and may be found ultimately to have some bearing on the everyday question of food-supply. For the present, the adequate feeding of the population seems to me one of the public health problems still awaiting solution. Actual food shortage—i.e., famine—in a general sense is unlikely in these islands in peace times, but reduction below subsistence diet among great masses of the population is a possibility in times of trade depression, and our machinery for meeting this is defective.

Industrial Fatigue.—In still another direction the horizon is lifting. Of recent years an entirely new field of research has been opened up by the application of physiological and psychological tests to the discovery of the causes of industrial fatigue. Diseases referable to particular industries have long been recognised, but the need for correlating the rhythm of the work to the physiological rhythm of the worker—if not an entirely new conception—is at least a new application of the doctrine which Collis and Greenwood aptly, I think, illustrate by the picture of a boat-race where the rowers "go to pieces" if the stroke is too slow to permit of sufficiently rapid breathing, and, on the other hand, cannot breathe efficiently when the rate exceeds 40 per minute. And as the conditions on which both efficiency and fatigue depend include the housing of the worker, his food, habits, and recreations, as well as the hours and method and conditions of labour, we seem at last to be within sight of a time when employer and employed can meet on a common platform and discuss the hours and conditions of labour in the light of the physiological conditions on which maximum efficiency may be reached with a minimum of fatigue.

CONCLUSION.

In conclusion, it would be unwise to forget that many of the aims of preventive medicine come under the general criticism so often applied to all schemes of social welfare. You are familiar with the argument. Racial fertility is in inverse ratio to the human value of the stock, and much of the work of preventive medicine is preserving the inefficient. Saved from the

incursion of barbarian hordes, civilisation is now imperilling its own existence by preserving the unfit. We are, it is alleged, accentuating the effects of a differential decline in the birth-rate by an indiscriminate preservation of many unfit lives at the other end of the social scale. Natural processes of selection we are told are being arrested, and we are silting up civilisation from the bottom.

But biological fitness to carry the burden of civilisation cuts across all social stratifications. In America, because of the enormous complexity of the social problems which immigration is producing, they are probably reaching conclusions more quickly than in this country. During the late war the U.S. Army authorities applied "Intelligence Tests" to nearly 1¾ million recruits, and "some of the best scores were made by illiterate ignorant Southern mountaineers who had never before been outside their native valleys. In other words, primitive conditions had held back a high-grade Anglo-Saxon stock, but the intelligence was there passed on from generation to generation, and only awaiting a favourable opportunity to display itself." It is right to state, however, that the main thesis of the author from whom I have taken this extract is the biological decline which threatens civilisation, and the volume is a reasoned statement of the evidence which the work of Galton and Whetham, among others, in this country has made familiar to us.[1]

But the quotation is of value, I think, if it serves to stimulate us anew to think what "primitive conditions" are, and induces us to ask how much biological capital of permanent value to the race is locked up in the unfavourable environment in evidence everywhere, awaiting the opportunity which it is one of the aims of preventive medicine to afford.

[1] The Revolt against Civilisation. By Lothrop Stoddard, Massachusetts. London: Chapman and Hall. 1922.

TOXI-INFECTIVE LESIONS IN THE CENTRAL NERVOUS SYSTEM.

THE INFLUENCE OF DISTURBANCE OF THE SYMPATHETIC MECHANISM ON THEIR LOCALISATION.*

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THIS research was inspired by a study of the spinal cords of clinical cases of pernicious anæmia, Addison's disease, &c., in which are found varying degrees of subacute combined sclerosis. It has been already pointed out that these differ anatomically and histologically from such true system lesions as tabes dorsalis. They do not follow the rigidly anatomical course one finds in tract lesions either ascending or descending, although in their later stages tract degenerations necessarily follow when the axis-cylinder becomes involved in the lesion and is separated from its cell of origin. The best example of a non-systemic lesion is found in pernicious anæmia, in which disease there is marked degeneration of the cord all round the periphery, leaving the grey matter and most of the basis bundles normal. In the posterior columns the lesion begins round the postero-median septum and extends towards the root-entry zones. According to Russell, Batten, and Collier,[1] the stress of the lesion falls upon the mid-dorsal region and spreads upwards and downwards, steadily diminishing—except so far as the secondary pyramidal lesions are concerned—until, in the sacral region, the degeneration is almost entirely pyramidal; while, traced upwards, the degeneration assumes a more systemic character due to interference with the axis-cylinders of ascending tracts originating at a lower level and implicated in the original lesion, with which are combined appearances due to the extension of the original lesion upwards. The maximum of the lesion always affects the upper dorsal and lower cervical portions of the cord, especially in the posterior columns. This is seen, for example, in Addison's disease and in cancerous cachexia.

Production of Non-Systemic Lesions.

Such lesions obviously have nothing in common with those found in tabes dorsalis, or with those reproduced in animals by infection of the lymph-stream of peripheral nerves, in both of which the root-entry zone of the posterior columns is affected first, and the degeneration is definitely and primarily systemic. In order to explain the mechanism of production of the non-systemic lesion or subacute combined sclerosis it is necessary to seek for a different path of toxi-infection of the central nervous system, and although the hæmatogenous route naturally suggests itself it does not adequately explain the localisation of the lesions. The locus of the combined sclerotic lesion of Addison's disease and of pernicious anæmia from the upper lumbar to the lower cervical segments suggested to Orr and Rows[2] a series of experiments in which the abdominal cavity was chosen as the site of infection, on the assumption that possibly the sympathetic mechanism was concerned in the determination of that localisation. The results were striking in their analogy to the pathological findings in the above-mentioned general diseases. They found primary degeneration of the myelin sheaths of white fibres, not following any definite tracts, but around the whole cord margin and along the postero-median septum, œdema of those parts of the cord, active proliferation of peri-vascular neuroglia, dilatation, congestion, and hyaline degeneration of the vessel walls and thrombosis of a similar hyaline type; whilst the grey matter of the cord and some of the surrounding basis bundles escaped. It is of importance to note that these latter areas are richly supplied with blood from the anterior spinal artery, whilst the parts supplied from the pia-arachnoid alone show degenerative phenomena; and further, that these primary changes are confined to those segments of the cord between the upper lumbar and the lower cervical levels. Still further, it is of importance to note that there was abundant microscopical evidence of reaction in connexion with the sympathetic ganglia—some of those examined showing chromatolysis of the ganglion nerve cells, proliferation of the ganglion blood-vessels, and proliferation of the capsular nuclei surrounding the ganglia themselves. The distribution of the cord changes and the confinement of these to the levels in which white sympathetic rami exist excite the strong presumption that disturbance of the sympathetic control of blood-vessels is a determining factor of the highest importance in the localisation of the results of toxi-infection reaching the central nervous system through the blood-stream. The term "general intoxication" obviously cannot express adequately the pathology of hæmatogenous lesions. It was suggested that a permanent paresis of the vessel wall with slowing of the blood current might conceivably occur, thus affording the most favourable conditions under which mild toxicity of the blood could exercise a deleterious action upon the surrounding nervous tissue.

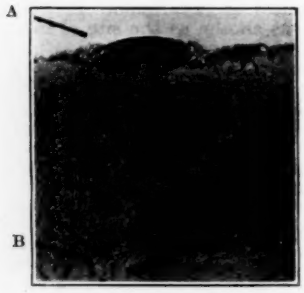
Toxic Action in the Brain.

In a further paper[3] the results of toxic action were studied in the brain, capsules containing cultures of the *Staphylococcus aureus* being placed in contact with the common carotid artery in the neck, thus causing a widespread mild and subacute infection of the whole blood-stream reaching the brain. The results were very striking in the analogy they bear to hæmatogenous lesions in the cord. In no way are the lesions systemic; they are to be found in all parts which derive their blood-supply from the vessels

* A research carried out with the assistance of a grant from the Medical Research Council.

of the pia-arachnoid. These vessels have a free anastomosis with each other, but do not anastomose with branches of the central arteries of the brain. In the cortex there are short pial vessels freely anastomosing in all but the deepest (multiform) layer and long pial vessels which penetrate this layer into the subjacent white matter and return to the cortex. Lesions were found, primarily vascular, of the nature of hyaline degeneration of the walls of the smaller vessels and of hyaline thrombosis within the vessels, and periarteritis with proliferation of the cells of the adventitia; and secondarily changes in the proper nerve structures of the nature of coagulation necrosis of nerve cells and neuroglial proliferation and hypertrophy. In the cortex these phenomena were observed only in those layers supplied by the small pial vessels. In addition, similar changes were found in the cornu ammonis, the amygdaloid nucleus and the pyriform lobe, all of which are supplied from the pia arachnoid—the cornu ammonis being an invagination of grey matter penetrated by folia of the pia-arachnoid accompanied by vessels, while the amygdaloid nucleus, continuous as it is with the tail of the caudate nucleus, is directly connected with the grey matter of the temporal lobe. In these experiments the brain lesions were found to agree anatomically with what was observed in the spinal cord in the earlier series of experiments on animals, in the one great fact that the degenerated elements lie within the zone of pial supply. Thus the subacute combined sclerosis has its analogy in the lesions of the brain resulting from hæmatogenous infection—with a difference, however, that in the cord it is the peripherally lying white bundles which derive their blood-supply from the pia that suffer in this condition, while in the brain it is the grey matter of the cortex and those deep collections of grey matter invaginated into the interior of the cerebrum but continuous with and supplied by the system of pia-arachnoid vascularity.

FIG. 1.

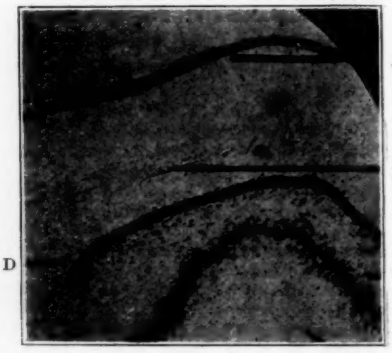


A, Dilated and congested vessels in the pia-arachnoid. B, Dilatation of vessels in subcortical white matter. Compare with Fig. 2, on which side the sympathetic has not been divided.

FIG. 2.

Vertical section through rabbit's brain; sympathetic not divided.

FIG. 3.



Showing the relationships of structures of the cornu ammonis. A, Cornu ammonis. B, White matter or lamina involuta. C, Ganglionic layer of cornu ammonis. D, Fascia dentata.

Method of Investigation.

These two experiments form the starting-point of our present research. The intention was to study the effects of hæmatogenous toxi-infection of the brain and the influence thereon of the sympathetic nervous system. Rabbits were used for the experiments. Firstly the vascular changes in the brain resulting from division of the sympathetic chain in the neck were studied in several animals, and secondly the effects of injections into the blood-stream of toxins, with and without previous division of the sympathetic chain, were examined and comparison made between the resultant pathological changes on the two sides of the brain. Instead of culture-containing capsules being placed in contact with the carotid artery, emulsions of a culture were injected into the blood-stream by means of the vein of the auricle. On the suggestion of Prof. H. R. Dean, to whom we are greatly indebted for ever-willing encouragement and help, *B. dysenteriæ* Shiga was employed. Injections were made on alternate days and in most cases resulted in the death of the animal after from three to five injections. Thus the conditions differ somewhat from those of the earlier experiments, the intoxication being of a much more acute character, sufficiently acute to cause the early demise of the creature and therefore likely to produce a different type if not a different site of lesion.

I. *Effects of Division of the Sympathetic Nervous System in the Neck.*

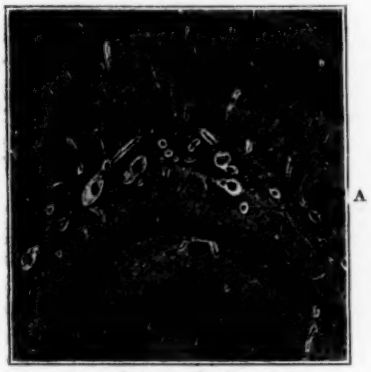
The division was made at a point between the middle and superior ganglia and a short portion of the nerve was excised. The animals examined were allowed to live three to four weeks and killed by chloroform. In sections of the brains of these creatures we find definite paralysis of vessels in the cerebral cortex, in the cornu ammonis, the amygdaloid nucleus, and the pyriform lobe of the divided side. There is a marked dilatation of blood-vessels in these areas with—from that very cause—an apparent increase in the number of capillaries from the exaggerated prominence given to them by dilatation. This is especially marked on the surface of the cortex, where there is a remarkable degree of dilatation of pial vessels (Figs. 1 and 2). There are œdema of the perivascular spaces and slight proliferation of the adventitial cells of these vessels. This is especially to be observed in the white matter just beneath the cortex where the long pial vessels which have passed through the cortex send recurrent branches to anastomose with the short cortical arteries. In this situation there are also small capillary hæmorrhages.

There is slight proliferation of the adventitia of the sub-ependymal venules and capillaries in the head of the caudate nucleus. This special change is found on both sides of the brain, but the side on which the sympathetic has been divided is affected by it to a greater degree. Here the sub-ependymal vessels external to the anterior horn of the lateral ventricle show proliferative changes, whilst a similar proliferation is observed in the sub-ependymal neuroglia. The confinement of these lesions to the head of the caudate nucleus is very remarkable, and it is to be explained by the fact that this nucleus is continuous with the basal cortex at the anterior perforated spot and derives its blood-supply from basal pial vessels.

The vessels in the white substance of the lamina involuta (Figs. 3 and 4) of the cornu ammonis also show a considerable degree of dilatation in these

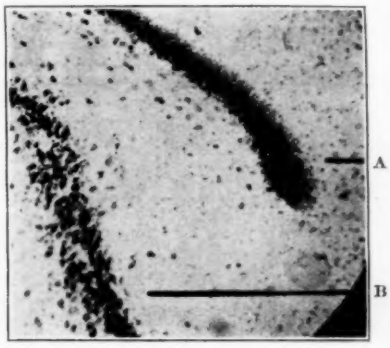
experiments; but, as this white substance surrounds folia of the pia-arachnoid invaginated from the mesial surface of the cerebral cortex, it is probable that in this region the congested vessels are analogous to the long pial vessels of the neopallium. Here and there the nerve cells in the above-mentioned areas show some degenerative change.

FIG. 4.



A, Hyaline degeneration in the cornu ammonis (lamina involuta).

FIG. 5.



A, Fascia dentata. B, Ganglionic layer of cornu ammonis. The nerve cells in both cellular layers show the deep-staining characteristic of coagulative necrosis.

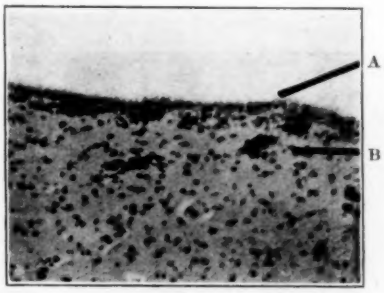
II. *Effects of Division of the Sympathetic with subsequent Injection of a Bacillary Emulsion into the Blood-stream.*

The pathological changes observed in the rabbit's brain after division of the cervical sympathetic on one side, followed by an injection of an emulsion of *B. dysenteriæ* Shiga into the general circulation, implicates certain definite areas, some of which are ganglionic structures, while others are of a lower order of tissue. The ganglionic areas which suffer from the intoxication are: the ganglionic layer of the cornu ammonis, the fascia dentata, the ganglionic layer lying under the stria olfactoria of the pyriform lobe, the amygdaloid nucleus, which is in direct connexion with the cortex of the temporal lobe on the one hand and the corpus striatum on the other, the head of the caudate nucleus, which merges into the grey matter at the base of the brain, and the cerebral cortex. The other structures which react to the intoxication will be considered later, as will a special lesion found in the head of the caudate nucleus. Taking firstly the affection of the nerve cells in the ganglionic areas above-mentioned, it must be noted that both hemispheres show a similar change in kind but one remarkably different in degree. That is to say, that on the side on which the cervical sympathetic has been divided prior to flooding the circulation of the animal with the Shiga bacillus, the resultant lesion is much more intense and the difference between the hemispheres is obvious even under a low magnification.

As noted in a previous paper, the ganglionic cells show the lesion characteristic of acute intoxication—viz., a coagulation necrosis of the cell body with homogeneous atrophy of the nucleus. This change is best observed in the cortex and in the ganglionic layer of the cornu ammonis. The cell body and the nucleus are stained darkly and diffusely, and in the advanced stage of the morbid process the former is shrunken and the latter crenated. With this the protoplasmic processes and the axis-cylinder acquire a marked affinity for aniline dyes and assume an undue prominence (Fig. 5). The nerve-cell degeneration in the cornu ammonis in this series of experiments appears to affect the ventral portion more than the dorsal, while in the fascia dentata it would seem that the portion nearest the great longitudinal fissure shows most change.

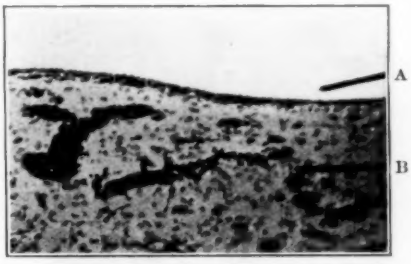
In the cerebral cortex certain features of the nerve-cell lesion are worthy of note. The degree of nerve-cell change is not equal over the whole cortex; it varies considerably from lobe to lobe; and when the cortical laminæ are compared the most external—that is to say, so far inwards as the ganglionic lamina—clearly show much more morbid change than the deepest or multiform layer. The nerve-cell changes in the amygdaloid nucleus and the pyriform lobe are similar to those noted above, and are, as observed in the cornu ammonis and the fascia dentata, more prominent in the hemisphere corresponding to the cervical sympathetic which has been divided. But in addition to these lesions there are others alluded to above which affect non-nervous elements and require special consideration. These are adventitial proliferation in the head of the caudate nucleus, sub-ependymal proliferation of neuroglia and secretion of a lipoid material by the ependyma of the ventricles and the iter and by the endothelial cells of the choroid plexus.

FIG. 6.



Division of sympathetic without addition of toxin. A, Ependymal lining of the lateral ventricle. B, A slight degree of periarteritis in the sub-ependymal tissue.

FIG. 7.



Division of sympathetic plus toxin. A, Ependymal lining of lateral ventricle. B, A high degree of periarteritis in the sub-ependymal tissue.

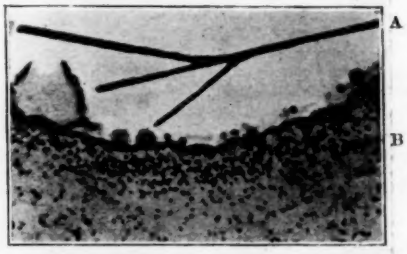
With regard to the adventitial proliferation in the head of the caudate nucleus, it is important to note that this is present to a slight degree, but quite definitely, in that nucleus after division of the cervical sympathetic chain without the additional factor of an artificial general blood infection (Fig. 6). This appearance is found in both caudate nuclei, though more prominently on the divided side. But when the additional factor of infection with the Shiga bacillus is introduced the resultant lesion in the head of the caudate nucleus is most remarkable. The adventitial proliferation in this region involves the sub-ependymal venules and capillaries, making these structures stand out even under a medium magnifica-

tion like thick cords, and although both nuclei show a high degree of the morbid change it is more in evidence on the divided side (Fig. 7). This proliferation is naturally best seen in vertical sections through the anterior horns of the lateral ventricles. It is well marked along the entire outer side of the ventricle, but attains its maximum at the outer and lower angle of each anterior horn, and the immunity of the tissue surrounding the inner side of the ventricle is most striking (Fig. 8). The morbid change decreases rapidly as the body of the lateral ventricle is approached, where the lesion is only slightly in evidence; posteriorly to this point the periarteritis is absent.

FIG. 8.

Division of sympathetic plus toxin. A, Anterior horn of lateral ventricle. B, Periarteritis in head of caudate nucleus. Note the absence of vascular change on the inner side of the lateral ventricles.

FIG. 9.



A, Secretion of lipoid from ependymal lining of the iter. B, Proliferation of subependymal neuroglia.

III. *Secretory Changes in Ependyma and Choroid Plexus.*

The ependymal cells of the lateral and third ventricles and of the iter are not proliferated. They are in a state of active secretion, pouring lipoid material into the cerebro-spinal fluid. On the contrary, the sub-ependymal neuroglia along the whole ventricular tract is proliferated (Fig. 9). The rabbits in which this secretory phenomenon was observed were killed by intravenous injection of a Shiga emulsion repeated from three to five times on alternate days. The secretion consists of small globules of a translucent and highly refractile material which coalesce into larger masses. When the masses are small they stain a uniformly violet colour with hæmatoxylin, and recall to mind the myelogenous bodies found in the primary toxic myelin degenerations of the spinal cord, while the larger masses under the same stain show two distinct zones—a large inner core composed of highly refractile globules with a weak affinity for hæmatoxylin and an outer marginal zone which has a marked affinity for the stain (Fig. 10). Large quantities of this material are seen in connexion with the choroid plexus, and adhering, in various stages of formation and of coalescence, to the ependymal cells of the ventricles and the iter (Fig. 11). Obviously the finer globules are being actively produced and secreted by the ependymal endothelium.

Pelizzi has pointed out[4] that the choroid plexus of the whole series of vertebrates shows details of structure and of function which are analogous. He has observed that this active secretory glandular function of the choroid plexus is most active in fœtal life—in man from the third to the seventh month of intra-uterine life—and diminishes progressively as life advances. Granules of acid fat and of special fats, soaps, calcium salts, lecithin, and lipochromes are gradually deposited in the protoplasm of epithelial cells and in the tissue between the epithelium and the blood-vessels. These substances are not absorbed by the choroid plexus from the cerebro-spinal fluid, but are products actively secreted by the choroid plexus, which pass into the cerebro-spinal fluid and are connected with the life and function of the central nervous system. The greatest and most varied accumulations of these substances occur in man. In acute experimental intoxications and following operations of decortication in animals, and physiologically in the second half of pregnancy, the deposit of acid fat and of fat in the endothelium and walls of blood-vessels is enormously increased, and is probably an expression of exaggerated metabolism in the central nervous system. The plexus of the fourth ventricle assumes the character of adult choroidal epithelium sooner, and shows greater quantities of acid fatty granules than that of the lateral ventricles. The cerebro-spinal fluid is in great measure composed of transuded lymph, and the secreted globules supply the lymph with a special substance of capital importance for the specific biological function of the cerebro-spinal fluid.

FIG. 10.

A, Secretion of lipoid from ependymal lining of the iter (note dark periphery of lipoid mass). B, Proliferation of subependymal neuroglia.

FIG. 11.

Showing the formation of lipoid substance in the choroid plexus.

Buscaino,[5] in a research on fats, stearins, and lipoids, after describing methods of staining lipoid substances and the residue left over from them after extracting with acetone, petrol, alcohol, &c., suggests that the central portions of such lipoid masses as we have described above may be neutral fats, while the peripheral portions may be phosphatides. Applying his methods to the study of yellow pigment in nerve cells, neuroglia, and adventitial cells, Buscaino agrees

with Obersteiner that these substances, sudanophile in reaction, are physiological and not degenerative. Fatty substances in the adventitia of blood-vessels constitute a reserve and are an index of lipæmia; they vary according to the amount of fatty substances circulating in the blood. In the adventitia the sudanophile granules consist of a central mass of neutral fat and a peripheral ring of unsaturated phosphatide, while in the nerve cells and neuroglia the granules are saturated phosphatides plus other lipoids, and also, especially in the nerve cells, substances of a proteid nature. When one considers the intimate connexion between neuroglia and blood-vessels, and when one remembers that non-saturated phosphatides are derived from non-saturated fats with the capacity of picking up oxygen, &c., from other substances, it can easily be seen that there may be a vasculo-neuroglial exchange of these various substances, which, passing from the blood into the vessel wall in the form of neutral-fat granules, undergo a change first at the periphery into non-saturated phosphatide, and later, under the influence of oxygen and possibly of ferments in the neuroglia cells in connexion with the vessels, become converted into saturated phosphatides to which proteid radicles are added. The neuroglia and nerve cells contain a reserve of oxygen stored up in these saturated phosphatides, and the presence of these bodies is of extreme importance for the nutrition and defence of the nervous tissues. Buscaino cites the above in favour of the view that these lipoids and pigments in the central nervous system are integrative and not degenerative.

The active elaboration and secretion into the cerebro-spinal fluid of lipoid substances in great quantity under the stimulus of acute general intoxication, and the parallel between this activity and the developmental phenomena described by Pelizzi, lead to a strong presumptive deduction that the above-mentioned secretion by the choroid plexus and the ependyma of the ventricles and the iter is of the greatest importance as an active defence measure against intoxication, as well as one destined for the purposes of regeneration and repair.

Summary.

1. *Lesions Due to Sympathetic Division Alone.*—These are vascular dilatation, perivascular œdema, slight proliferation of adventitial cells which may be a response to increased permeability of the vessel wall resulting from sympathetic paresis and the release of certain noxious products from the circulation. There is at the same time morbid change in the nerve cells. We would note again that the areas affected are those supplied by the pial vessels—viz., the cornu ammonis and fascia dentata, the caudate and amygdaloid nuclei, the pyriform lobe, and the cortex cerebri.

2. *Lesions Found when, After Division of the Cervical Sympathetic, a General Intoxication is Produced.*—These affect the same areas, but to a much greater degree, and the unilateral sympathetic division intensifies the toxic morbid lesion on the same side. The areas involved in both series of experiments are the archaic regions of the brain plus the cerebral cortex, which is developed from the archipallium. All are supplied by pial vessels now known to be under sympathetic control.[6] It would appear, therefore, that the sympathetic nervous system is an important factor in toxi-infective inflammation and degeneration, and its involvement is a contributory factor in the localisation of lesions, not only in the central nervous system, but probably wherever they may occur. We would suggest that further investigation on this point might lead to a better comprehension of the genesis of obscure non-systemic lesions affecting both the spinal cord and the brain.

3. *The Periarteritis in the Head of the Caudate Nucleus.*—This is so well defined and so localised as to seem of special significance in view of the obscurity which at present surrounds the ætiology of certain lesions which implicate the lenticular area. This area is in direct communication with the basal cortex and therefore with pial supply.

4. *The Lipoid Secretion in the Ventricles and Choroid Plexus.*—This we regard as an active process. The intense and early secretion of the lining epithelium points to this, and doubtless is a protective as well as perhaps also a regenerative mechanism.

5. Apart, however, from the anatomical and pathological aspects of the above lesions another question arises—what part does the disturbance of the sympathetic nervous system combined with lesions in the archaic parts of the brain play in the genesis of disturbed emotional states. The lesions above described show that definite changes in the archaic areas and cortex are produced through interference with the blood-supply without toxic influence, although, as one would anticipate, they become intensified by the additional factor of an added intoxication. This fact inclines one to take a much broader view of the genesis of emotional disturbance and tends to take the question out of the purely psychical field of argument. The complex reaction of emotion upon the psyche and the physical well-being of the individual is now well recognised, and it may be taken for granted that in emotional disturbance the initial stimulus may come from the sensorial cortical areas, the sensory peripheral nerves of the life of relation, or through the endocrino-sympathetic system which subserves the function of kinæsthesia, and is the physiological foundation of those feelings of well- or ill-being so important in the psychic and physical life of the organism. Those kinæsthetic or vegetative stimuli when normal remain unconscious but leap into prominence so soon as they become abnormal, and are just as important as those which reach the individual from the outside world.

Every stimulus which impinges on the central nervous system produces results which embrace a vast territory. We are now aware from anatomical, embryological, and physiological researches that the various portions of the nervous system cannot be separated into physiologically water-tight compartments; and, although each portion has to a certain extent a specific function, yet each reciprocates with the other portions of the nervous hierarchy in order to attain a harmony of action. It is thus apparent that, whether the exciting stimulus be central or peripheral in origin, its influence must reverberate throughout the whole nervous system and its appendages, and must find its expression in a reaction on the part of the psychic and vegetative life.

For the maintenance of balance of the various reciprocating portions of the nervous system a healthy circulation is essential, and on this to a large extent must depend a healthy psyche. A healthy affective tone plays no small part in keeping the higher cortical and intellectual functions up to their highest level; and it is well recognised that affective tone and emotion are influenced or often greatly disturbed by morbid changes in the archaic portions of the brain. It is there and in the cerebral cortex that we find lesions after interference with the cervical sympathetic in the rabbit; and, as affective tone and emotion are so closely linked up with the function of the endocrino-sympathetic system, we would suggest that their disorder is the result of a psycho-physical process which alters the nutrition of the ganglion cells which govern their mechanism. A similar process no doubt is accountable for the large group of functional disturbances termed the psycho-neuroses.

In conclusion, we would only add that future researches may ascribe more importance to the effects of altered nutrition of the central nervous system than to the purely psychic element, although we fully recognise the influence of the one upon the other.

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A CASE OF LOCALISED SUPPURATIVE MENINGITIS OVER THE MOTOR CORTEX.

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INTRACRANIAL complications following disease of the middle ear and mastoid antrum are nearly always the sequelæ of a manifest infection of the bone adjoining the cranial cavity itself, and the path of infection can usually be demonstrated either at operation or post-mortem. The case to be narrated, in which suppurative meningitis following mastoid infection was localised over the motor cortex, is therefore one of some rarity, and raises several interesting points for discussion in its surgical aspects. To the neurologist, also, the case is of some interest, in that it afforded an opportunity for observation of the symptoms produced by a purely superficial lesion of the leptomeninges and cerebral cortex, the position and nature of which were clearly seen at operation.

E. B., a girl aged 12, was admitted into Guy's Hospital under Mr. R. P. Rowlands on Nov. 22nd, 1921, from Mr. W. M. Mollison's out-patients.

History.—Sudden pain in the left ear Nov. 19th, 1921, Otorrhœa commenced on the evening of the 20th, ceased on the morning of the 21st, but recommenced in the evening.

Condition on Admission.—Temperature 101·4° F., pulse 128, slight purulent discharge from left ear. No swelling, redness, or superficial tenderness over mastoid. Tenderness on firm pressure over mastoid antrum and tip of mastoid process.

Operation.—The mastoid was exposed by the usual post-aural incision, and superficially the bone appeared quite normal. The antrum was opened and found to contain granulations, but little pus. The mastoid process was chiselled away down to the dense bone surrounding the lateral sinus. This bone was normal, as was also the root of the zygoma and the upper group of air cells. The dura of the middle fossa was exposed, and found to be smooth, white, and pulsating. There were, however, infected air cells and carious bone in the tip and along the anterior border of the mastoid process. All this diseased bone was thoroughly removed. The cavity was rubbed with bipp, and sewn up over a glove drain.

Progress.—The temperature and pulse were down for 36 hours, and then commenced to rise. Nov. 25th, 10 P.M., T. 103·6°, P. 140. Mental condition normal. On the 26th, 10 A.M., T. 101·4°, P. 120. Very drowsy condition. Does not appear to grasp questions. Eye reactions normal. Knee-jerks and plantar reflexes normal. No motor paresis.

Operation.—Wound opened. No further bone disease discovered. Dura of middle fossa further exposed, but found normal. Lumbar puncture yielded cerebro-spinal fluid under slight tension.

Examination of Cerebro-spinal Fluid.—Direct films showed lymphocytes and polymorphs in excess. No organisms. Slight reducing power; albumin 0·03 per cent. On the 27th condition dull, as before.

On the 28th the patient appeared pale, drowsy, and apathetic. T. 101·2°, P. 100. She showed considerable difficulty in comprehending what was said to her, being able to perform only the simplest tasks set. There was no spontaneous flow of speech, and when asked questions she showed a marked tendency to perseveration, saying, "Yes, nurse!" in reply to every inquiry, including "Would you like another operation?" No stiffness of the neck was present, but Kernig's sign was definite. The optic discs were normal.

The lower half of the right facial musculature was completely paralysed, although hardly any weakness could be detected in the orbicular muscles of the affected side. On being asked to protrude her tongue she was quite unable to do so, though when the question was repeated she endeavoured to pull it out with her fingers. Apart from these disorders there were no defects in the functions of the cranial nerves.

Examination of the motor functions of the body revealed as the most striking features of the child's condition a complete flaccid paralysis of the right upper limb including the muscles of the right shoulder girdle. The limb was quite toneless and flail-like, and the supinator- and triceps-jerks were absent. Rough examination of the sensations disclosed no defect. The abdominal reflexes were absent on the right side and the right plantar reflex was of the extensor variety. Apart from these points no other abnormalities were detected in the neurological examination. The power of the lower limbs was good and equal, nor could any quantitative difference be detected between the knee- and ankle-jerks on the two sides.

In determining the site and nature of the lesion we had to consider (1) a right brachial monoplegia of rapid onset, unaccompanied by any weakness of the right lower limb, but associated with facial weakness (of the upper neuron type), a mild degree of aphasia and apraxia, and the reflex hall-marks of damage to the pyramidal neurons; and (2) the presence of an excess of polymorphs in the cerebro-spinal fluid, together with a positive Kernig's sign. These considerations led us to the diagnosis of a cerebro-spinal meningitis with a localised focus of infection upon the surface of the brain at the lower part of the left pre-central convolution.

Operation.—The mastoid incision was continued upwards, and the temporal muscle split in the line of its fibres. Bone was removed freely in an upward and forward direction. The dura was smooth and not bulging. After undersewing the middle meningeal vessels, it was incised, and the subdural space and brain were found normal in appearance. More bone was removed, and the dura opened as far as the Sylvian fissure; the appearance was still normal. The exposure was continued upwards by further removal of bone and incision of dura till a roughly circular patch of purulent meningitis, the size of a two-shilling-piece, was exposed, overlying the lower half of the pre-central convolution. The upper limit of this area was not disclosed, since it was felt at this stage of the operation that it would be unwise to run the risk of breaking down the protective adhesions which limited the focus above. A glove drain was placed leading from the exposed area of suppuration to the lower angle of the wound, which was then closed by suture of temporal muscle and skin, leaving the dura open.

After-history.—On the 29th condition much the same. Lumbar puncture showed 70 cells per c.mm. mostly polymorphs, protein 0·04 per cent. On the 30th and on Dec. 1st no change in neurological signs, but general condition improved, and temperature and pulse falling. On the 2nd, at 9.10 A.M., *for the first time in the history of the illness*, she had an attack of Jacksonian epilepsy accurately observed and described by her mother, who was watching at the bedside. It began with conjugate deviation of the head and eyes to the right, followed by spasm of the right face, hand, and arm. During the next six hours she had five more of these attacks. When seen at 6 P.M. she was able for the first time since the day of operation to protrude her tongue on request. It was thrust out definitely to the right. Lumbar puncture this day showed 100 cells per c.mm., mostly polymorphs, and protein 0·02 per cent. On the 3rd she began to use her right hand for knitting, though somewhat clumsy with it. On the 5th she was knitting quite well, and spontaneously using the right limb in shaking hands. Mentally quite clear and talking naturally.

The face still showed a very slight weakness about the angle of the mouth. The tongue was protruded readily in the mid-line. The right hand-grip was weaker than the left, but all movements of the right upper limb were performed vigorously and readily. In the performance of the finger-nose-finger test, for instance, she was quite as good with the right arm as the left. The right arm-jerks were somewhat brisker than the left. The right-sided abdominal reflexes were more readily exhausted than the left, and an occasional indefinite extensor response was obtained on plantar stimulation. No neck stiffness present. Kernig's sign doubtfully positive.

From the 5th to 11th the general condition steadily improved, but a large hernia cerebri developed. On the 12th at 3.30 P.M., she had a sensory Jacksonian attack witnessed by her mother. She suddenly said: "Oh, Mum! my hand don't half feel funny: it's got a pain in it, and all down my leg and in my side." The attack was over in a minute and left her feeling quite well. She was examined an hour later, and proved to have considerable loss of sensibility in the right upper limb. In the right hand she was unable to distinguish accurately the shape or nature of objects placed in it while her eyes were shut. Thus she called a florin a ring, and a key, money, the responses in the left hand being correct (halfpenny and key). She also displayed gross loss of *sense of position* at finger-, wrist-, elbow-, and shoulder-joints. In attempting to recognise the spot touched (*topognosis*) she showed a very definite tendency to refer all contacts applied to peripheral parts of the fingers to the palmar or dorsal surfaces of the hand at the metacarpo-phalangeal junction.

Light touches with a camel's hair brush of a kind appreciated without error on the left hand were altogether missed over the "glove" distribution on the right. Pinpricks were said to be felt as keenly on the right as on the left. In discrimination between two-point and single-point application of the compass she showed gross error on the right hand.

With the points at 2 c.cm. distance she made no mistakes on the dorsum of the left hand; on the right she was only able to guess with 50 per cent. error even when the points were separated to 5 c.cm. Sense of position in the right foot was perfect. There was no defect of the visual fields. The deep and superficial reflexes remained as before with the exception of the plantar response, which was now flexor. After so long an interval of freedom from symptoms it was decided that the recrudescence was probably due to loculation of cerebro-spinal fluid by inflammatory adhesions.

Operation.—The upper end of the wound was opened about one inch, and a No. 8 rubber catheter pushed under the dura in the direction of the arm and face sensory area in post-central convolution. A collection of clear cerebro-spinal fluid escaped along the catheter. A glove drain was put along the track, and four-hourly eusol dressings applied.

After this improvement was continuous. The hernia cerebri had subsided in four weeks. The sensory defect in the right arm was slow in disappearing, but on Jan. 16th, 1922, the only abnormality of sensation detected was a relative difficulty in discriminating between single-point and double-point stimulation in the right hand. This, in a series of experiments, showed as follows:—

		Distance between points in cm.		
		2	2·5	3
Percentage of errors	Right hand..	35	20	16
	Left hand ..	20	12	8

Gross tests for sense of position showed no loss, and "spot finding" was accurate in both hands. She stated that she had a little difficulty sometimes in distinguishing objects placed in her right hand, but responded correctly each time with a series of tests. Her answers, however, were not quite so ready with the right hand as the left. There was still some weakness of the lower part of the right face, and some generalised weakness of the right upper limb, although she herself stated that her right arm was the stronger. The right arm-jerks were a little brisker than the left, the right abdominal reflexes slightly less easily obtained, and the right plantar reflex not so definitely flexor as the left.

She left the hospital on Jan. 25th, 1922. The wound was healed, and she was quite well, except for the subjective uncertainty in handling objects with the right hand mentioned above. She was provided with a small aluminium shield to protect the cranial defect.

Remarks.

To sum up the points of surgical interest, the lesion in this case was a sharply localised patch of suppurative meningitis overlying the motor cortex, and separated by at least two inches of healthy tissues from the source of the organisms—i.e., the middle ear and mastoid process. The mastoid infection was in an early stage, and the obvious bone disease was only in that portion of the mastoid process farthest removed from the cranial cavity.

From the surgical point of view, the chief interest lies in the question of the path by which the spread of infection had occurred. Three routes suggest themselves as possible: first, by the labyrinth and internal auditory meatus; secondly, by the diploë of the squamous temporal bone and the communications with the meningeal veins; and thirdly, direct spread through the subarachnoid space. The first route can be definitely excluded. At no time, either before operation or during recovery, were there any symptoms pointing to involvement of the labyrinth, while bone conduction remained normal on the affected side. Moreover, there was no visible meningitis in the Sylvian fissure, and an infection spreading from the internal auditory meatus to the Rolandic area would pass by this region. The second method of spread, by the diploë of the squamous temporal, was suggested by Mr. G. J. Jenkins when the case was shown at the Otological Section. Communications exist between the diploë and the meningeal veins, and in these the flow of blood is from bone to meninges and could presumably carry organisms with it. If, however, the disease had spread by this path, it is probable that there would have been visible infection of the diploë in the squamous temporal, and a localised patch of infected dura overlying the pus in the subarachnoid space. Neither of these conditions was present. There remains only the path by the meninges and subarachnoid space. The subarachnoid space is looked upon as part of the lymph system, and the capacity to overcome and to localise infective processes is a characteristic of all lymphatic areas. In the peritoneum and in the superficial lymph plexuses it is quite common to find that an abscess may appear at some point distant from the primary source of sepsis, while the intervening areas through which the bacteria must have passed have been able to overcome the infection and remain undamaged. Thus, an area of cellulitis may appear on the inner side of the thigh following an infected blister on the heel, or a collection of pus in the pelvis may be the only residue of an acute appendicitis after the primary focus has completely recovered. The subarachnoid space is a finely subdivided plexus in which localisation could be presumed to occur readily, and its power to overcome a declared meningitis is an established fact. In this case it seems probable that the bacteria travelled from the middle ear to the motor cortex by the lymphatics of the bone, the dura, and the subarachnoid space, but that in the intervening areas the resistance of the tissues was powerful enough to prevent any manifest infection. While this chain of events is possible, it is undoubtedly of very rare occurrence. The usual picture is one of infected bone, a red and softened dura perforated at one spot, and an intradural collection of pus directly continuous with the lesion in the dura itself.

Neurological Considerations.

From the neurological point of view, the main facts of interest in the early history of the case are the completeness and sudden onset of the brachial monoplegia in relation to what must have been a quite superficial lesion of the cortex, and the absence at this early stage of focal epileptic attacks, which only supervened as a penultimate phase preceding the recovery of voluntary power. This progress, from complete paralysis, through a stage of epileptic attacks to recovery of voluntary power, is the exact reverse of that often seen in cases of progressive destruction of the motor cortex by a tumour of the meninges, in which the initial phase of epileptic seizures is gradually succeeded and replaced by paralysis. Taken in conjunction, the two observations lend support to the theory that the epileptic discharge is dependent upon a condition of the motor nerve cells which lies at some particular point upon the scale between the two extremes of normal activity and complete inexcitability. In the case of a very rapidly progressive depression of function, such as occurred at the onset in the case recorded, this optimum point for an epileptic discharge may be passed before a seizure has time to mature.

The extension of the suppurative process to the sensory cortex after a latent interval afforded an opportunity for examining the resultant disturbance of sensory functions. In this instance, although we were unable actually to view the site of the lesion, we may reasonably suppose that it was entirely superficial and contiguous with the focus observed in front of the fissure of Rolando. That is to say, that the lesion in all probability affected the anterior part of the post-central convolution in its lower half. In accordance with the conclusions reached by Head[1] we found most evidence of disturbance in the sphere of spatial recognition, together with a mild degree of astereognosis. After recovery the only measurable loss was that determined by the compass-point discrimination test, though it is possible that had the necessary apparatus been available, impairment of the sense of passive movement might have been demonstrable. As far as they go, therefore, these observations support the beliefs expressed by Head that in the case of a lesion of the sensory cortex "the farther forward it lies within this region, the grosser and more extensive is the disturbance shown by the spatial tests," and that, when such disturbance exists, the ability to localise a spot touched is less severely affected than the discrimination of two compass-points.

[1] Head, H.: Sensation and Cerebral Cortex, Brain, 1918, xli., 57.

WASSERMANN AND SIGMA TESTS

COMPARED IN 569 CASES.

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IN order to establish the accuracy of Dreyer and Ward's method of estimating the Wassermann substance in the blood (Sigma test)[1] any series of results comparing the new method with the older Wassermann test is of value.

Material.—The present series includes nearly all the samples of blood sent to this laboratory for the routine Wassermann test from July 28th, 1921, to Feb. 2nd, 1922; and is made up as follows:—

		Cases.
V.D.D.	1. Treated syphilis	187
	2. For diagnosis	89
Hospital and private patients undiagnosed		293
		569

The series includes a good many cases examined on more than one occasion.

Technique.[1]—1. The Wassermann test was performed by a slight modification of method 4 in the Medical Research Committee's report on the Wassermann test. Each serum was tested both with three and with four times the M.H.D. of complement. The antigen was the same as that used in the Sigma test, except that no cholesterin has been added. The heart extract, prepared according to the method of Bordet and Roulens, has been evaporated to dryness before making up into a saline suspension. It is, perhaps, fair to point out that while we have obtained more reliable results since using this antigen, in that no case has given a positive result at variance with the clinical findings, the readings are possibly less delicate than those obtained with the more concentrated cholesterin-heart extracts generally in use.

2. The Sigma test was carried out in accordance with the technique laid down in the original description by Dreyer and Ward. The same pipette was used throughout the test in any one week, and the only variation of detail was the washing of the pipette in distilled water (twice) and saline (twice), instead of in alcohol and ether and drying in the bunsen flame.

Routine.—The Wassermann was first performed and the sera then placed in the water-bath at 52° to 55° C. for one and a half hours in preparation for the Sigma. For those sera which have given a positive or doubtful Wassermann, the Sigma test was carried to the full nine tubes; for the remainder, the first five tubes only were used.

Interpretation of Results.—(1) In the Wassermann, complete inhibition both with three and four M.H.D. of complement has been recorded as ++++. +++ signifies 80 per cent., ++ 50 per cent., + 20 per cent. and ± a trace of inhibition with three M.H.D. of complement.

++++, +++, and ++ have been regarded as positive.
+ and ± have been regarded as doubtful.
− has been regarded as negative.

(2) In the Sigma, in accordance with Dreyer and Ward's interpretation, four units and over have been regarded as positive in an undiagnosed case, one unit and over as positive in a case of known treated syphilis, and one to four units as doubtful in an undiagnosed case. (See Table.)

Discussion of Results.

In our hands the Sigma test has proved slightly more reliable and more delicate than the Wassermann. Difficulty arises with those sera that give a reading of less than four units. As will be seen, a not inconsiderable proportion of the undiagnosed cases gives this small reading; and some of these were clinically negative. This naturally throws doubt on the value of a similar small reading in the known syphilitic cases, where it is regarded as positive.

The most that can be said is that a reading of less than four units is suggestive of syphilis. In several cases such a small reading has been obtained on successive occasions, with a negative Wassermann, both in undiagnosed cases that were almost certainly syphilitic (especially syphilis of the central nervous system), as well as in old treated cases of syphilis. On the other hand, cases that were clinically negative generally gave a completely negative Sigma at the second examination. With increasing experience of the test, these last have become relatively more infrequent. Finally, it should be noted that in the undiagnosed cases, no blood gave a positive Wassermann as against a negative Sigma. Of the five which gave a positive (S ++) Sigma and a negative Wassermann, four were clinically positive and one was doubtful.

Results.

Total	W+ S++	W− S−	W+ S−	W− S++	W− S+	Wd S++	Wd S−	W+ S+
All cases, 569 ..	109	327	2	14	56	27	31	3
Per cent.	19·2	57·3	0·4	2·5	9·8	4·8	5·5	0·5
Treated syphilis, 187 ..	55	63	2	9	29	18	11	0
Per cent.	29·4	33·7	1·1	4·8	15·5	9·6	5·9	0
Undiagnosed, 382	54	264	0	5	27	9	20	3
Per cent.	14·1	69·1	0	1·5	7·0	2·3	5·2	0·8

S++ = more than 4 units and S+ = 1-4 units.
W+ = ++++, +++, or ++. W− = negative.
Wd = doubtful (+, ± or inhibition in control).

Conclusions.

1. The Sigma test is slightly more reliable and more delicate than the Wassermann. It is also less complicated.

2. A reading of one to four Sigma units only must be regarded as doubtful. If obtained on more than one occasion, it is probably evidence of syphilis.

My thanks are due to Dr. A. G. Gibson, under whose general direction the work has been carried out, to Dr. H. K. Ward; and to Mr. A. Chown, who has been responsible for much of the work in connexion with the setting up of the tests.

Note.—Since writing the above, a further 387 Sigma tests have been carried out, in which the readings have been recorded both after 7 and after 24 hours' incubation. As suggested by Dr. Ward, the longer incubation is of great help in assessing the value of a Sigma reading of less than 4 units (after 7 hours' incubation), since a true positive will give a considerably increased degree of flocculation after the longer period. Of the 387 cases, 31 (8 per cent.) gave a reading of less than 4 units. Of these, 27, which were all clinically positive or from known treated cases of syphilis, gave such increased flocculation after the longer incubation. Four, which were all clinically doubtful, gave no such increased flocculation.

[1] THE LANCET, 1921, i., 956.

THE FORMALIN TEST FOR SYPHILIS:

SOME CONDITIONS CONTROLLING GEL FORMATION.

BY A. G. HOLBOROW, F.I.C.,

PUBLIC ANALYST AND BACTERIOLOGIST, GIBRALTAR.

IN view of the interest taken by pathologists and physicians in the so-called formalin test for syphilis it was thought desirable to look further into the test, and, if possible, to determine conditions which would make the test more reliable. Recalling the figures of Gate and Papacosta (originators of the formalin test) it is seen that working on 400 sera the Wassermann reaction (W.R.) and the formol-gel reactions accord in 85 per cent. of instances. Dr. Neave Kingsbury,

working on 261 sera, found that only 43 per cent. of sera giving a positive W.R. showed a positive formalin test, and that 9·5 per cent. of sera giving a negative W.R. gave a positive formalin. At the Gibraltar laboratories, working with 153 sera, I have found the following :—

No. of specimens.	W.R.[1]	Formalin test.
45	+	+
19	+	−
17	−	+
72	−	−

Irregularity of Behaviour of Formalin.

Reports from different laboratories are not consistent, testifying to the unreliability of the formalin test. The cause of this irregularity of behaviour of formalin to sera is a matter of much interest. Its importance lies in the fact that a wrong diagnosis may be made by using a test of the chemical and physical nature of which so little is known.

The following experiments were undertaken with the object of determining possible chemical conditions which might influence the test. When neutral formalin was added to white of egg (i.e., the more viscid part) a thick clot was formed by the following morning. The control remained unaffected. This result led to examining other media containing albumin and globulin. It was found that cow's blood serum and sheep's blood serum both set to a stiff gel in 18 hours after addition of formalin. The controls (without formalin) remained fluid indefinitely. The test was carried out in the original way by adding two drops of neutral formalin to 1 c.cm. of the serum. Three sheep's sera were tested, two of which were positive (stiff gel) to formalin in 18 hours. The third sheep's serum remained in a liquid condition for four days without forming a gel. It was suspected that the condition of this serum was not satisfactory for gel formation, and it was thought a gel could possibly be formed artificially. This proved to be so, as will be seen later. Using this same sheep's serum, and also human serum,[2] a series of tubes were put up as follows :—

1. Serum + formalin.
2. Serum made slightly acid with HCl + formalin.
3. Serum made slightly acid with acetic + formalin.
4. Serum made slightly more alkaline with ¦NaOH + formalin.
5. Serum made slightly more alkaline with lime-water + formalin.
6. Serum + 2 drops acetone (ketone).
7. Serum + 1 drop hydrogen peroxide + formalin.

Each separate tube was accompanied with a control containing no formalin, and the tubes examined in 18 hours. The results are as below :—

1. Liquid, no change.
2. Stiff gel formation.
3. " "
4. Liquid, no change.
5. " "
6. " "
7. Liquid 18 hours—stiff gel formation 36 hours.

All controls remained fluid.

From these results it is seen that if the serum be made slightly acid to litmus a stiff gel will be formed with formalin, and no gel occurs if the alkalinity be increased. Increased alkalinity of a serum would appear to inhibit gel formation. Carrying this yet further, more of the serum (human and sheep's) was taken, and its alkalinity decreased with acetic acid ; it was allowed to remain alkaline to litmus. The effect of formalin was to produce a soft gel in 20 hours and a stiff gel in 48 hours. The controls remained fluid. The formation of a gel in tube 7 would be due to the oxidation of the formaldehyde to formic acid by the hydrogen peroxide added. If these results are to be interpreted and an explanation given of the interchange of alkalis and acids in the body during life, a very complex metabolism is met, impossible of emulation in the laboratory.

[1] Method described by Colonel L. W. Harrison, D.S.O., R.A.M.C., as used at Rochester Row Military Hospital.

[2] Wassermann and formalin negative.

Dual Nature of Acid-combining Power of Blood.

As the acid-combining power of the blood is of dual nature, due to (1) free or diffusible alkali salts, and (2) the combining power of the protein with acid, it is a matter of conjecture which is affected when acid is added in small quantities, insufficient to make the serum acid to litmus. It is known that in normal blood the degree of alkalinity fluctuates before and after a meal. In excessive exercise or deficient nitrogen in diet the alkalinity is decreased. In pathological conditions the deviation from normal in the same direction becomes marked, as in uræmia, anæmia, acidosis, &c. In conditions causing decreased alkalinity of the blood it is feasible that a sufficient decrease may be reached whereby a positive formalin test is obtained, for, as mentioned already, two sheep's sera showed positive formalin test, and the other did not.

This might explain why some human sera give a positive formalin test but negative W.R. Whatever the true explanation demands, it can be shown that weak acids like dihydrogen-sodium-phosphate (NaH_2PO_4) are effective in reducing the alkalinity of blood sufficiently to produce gel formation with formalin. This substance might well be an intermediate product in the formation of the disodium-hydrogen-phosphate found in blood, and more especially if the bases present should be insufficient to convert it.

Tube A. Human serum + NaH_2PO_4 (alkalinity decreased) + formalin.

Tube B. Human serum + NaH_2PO_4 (made neutral) + formalin.

Tube C. Human serum + NaH_2PO_4 (made acid slightly) + formalin.

Result.—Tube A, gel in 40 hours. B, gel in 30 hours. C, gel in 24 hours. Controls unaffected. Acid sodium phosphate took longer to act than was the case with stronger acids.

Deductions and Conclusion.

When serum forms a gel with formalin it is due to the direct action of the reagent upon serum albumin or serum globulin, or both, and not due to any action upon the toxins of *Sp. pallidum* direct. It is probable that acid-protein produces a gel with formalin and alkali-protein does not. If formalin forms a gel of human serum it is an indication of decreased alkalinity of that serum, but does not decide the cause of the decreased alkalinity. The evidence obtained from the foregoing experiments is, in my opinion, sufficiently adverse to regard the formalin test for syphilis with much reserve.

A NOTE ON LUMINAL.

BY W. JOHNSON, M.D. LOND.,
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SOME years have elapsed since luminal was first recommended as a drug useful in epilepsy.[1] The object of this note is to draw attention to its value and to recommend its use to a much greater extent than appears to be the case at the present time. My experience with luminal in the treatment of epileptics extends over the last two years. I began using it for those cases—so well-known in the out-patient department—where drugs had been used for several years and the patient has wandered from hospital to hospital without any improvement in the condition being obtained. The result proved so surprising that I commenced prescribing it and noting results in all varieties of " fits." The beneficial effect of the drug has seemed to be extraordinarily wide.

Pharmacologically, luminal is closely allied to veronal, one of the ethyl groups of this latter drug being replaced by a phenyl group ; the full chemical name is phenyl-ethyl-barbituric acid. The dose given is 1½ to 5 gr. It is insoluble in water, but is easily suspended in a mucilage mixture, and in this form is readily taken without unpleasant effects.

[1] Hauptmann : Münchener medizinische Wochenschrift, 1912.

(*a*) In the first place, those cases of idiopathic epilepsy which show little or no response to treatment with potassium bromide, together with those cases in which potassium bromide has reduced the fits to a certain level (which then remains stationary), luminal ½ gr. added to the bromide mixture has in nearly every case resulted in an immediate lessening in the number as well as in the severity of the attacks. I am not as yet prepared to dogmatise, but it has seemed as if the minor attacks have yielded somewhat more readily than major epilepsy. To give one instance—that of a boy aged 10 years, who was having 20 to 30 attacks of petit mal daily, in whom, within one week, the attacks were reduced to three or four a day. These were typical petit mal seizures; one occurred in front of me whilst I was interrogating the mother. The eyelids suddenly began to blink rapidly and the boy to sway on his feet. The eyes were then strongly turned to the left and momentary unconsciousness occurred. In a few seconds the boy recovered, and although slightly dazed was able immediately to answer a question which I put to him. The mother's own expression on the occasion of the second visit was that the improvement was "miraculous." He had previously been treated for years, presumably with bromide. In other cases slower improvement has occurred, and in these it has been my practice to increase the dose by ¼ gr. weekly if necessary, up to a maximum dose of 2 gr. three times a day. I have never had occasion to give larger doses than this for epilepsy, although, as will be mentioned later, larger doses may be given. In the majority of my cases ¾ gr. combined with potassium bromide 10 gr., given three times a day, has proved adequate.

(*b*) The next cases which were tried belonged to the large group of fits associated with organic cerebral lesions. Four cases of cerebral diplegia in children—where the fits were not controlled by bromide—all showed immediate improvement. The attacks have not entirely ceased, but as they are becoming progressively less, one hopes in time that they will be completely controlled. In this connexion I might mention that the drug has not produced any untoward effect on the patient's mental state. The mothers, in fact, state that the children are brighter—a condition to be expected, however, merely from the lessening of the fits. In children of two years the initial dose has been ⅛ gr. t.d.s. In one case of congenital syphilis—a girl of 11 years—with severe scarring round the mouth, definite improvement in the fits and mental condition has also occurred. Obstinate fits associated with infantile hemiplegia have also responded satisfactorily.

In my series of cases, which number about 25, I have definite absence of improvement in two cases only—both, I think, cases of idiopathic epilepsy, one a child of 3 years and the other a man of 28. The former, however, is said to have sustained a severe fall on the back of the occiput prior to his attacks, and it is possible there may be some local cortical trauma. Whether traumatic epilepsy will prove to be rather less amenable to the drug than the idiopathic form must be left for future observation. With doses above 2 gr. three times a day untoward effects have occasionally occurred. The patient has become "peculiar," and a form of mental excitement going on to mania may result unless the drug is withdrawn.

(*c*) Finally, larger doses of the drug may be used in the attempt to influence certain forms of mid-brain tremor. I have used it in cases of paralysis agitans and in the rhythmical tremor following lethargic encephalitis—but as yet with no very pronounced benefit. I remember, however, a case shown recently by Dr. A. Feiling, where 6 gr. were being given three times a day with good effect, but I have not as yet given anything approaching this dose. An investigation of the value of luminal in the treatment of the severer forms of chorea is at present being undertaken.

In conclusion, it would appear that in this drug we have a valuable therapeutic agent worthy of a place amongst the dozen or so drugs which form the stand-by of the physician.

A CASE OF AUTO-SUGGESTION BLINDNESS.

BY KENNETH CAMPBELL, M.B. EDIN., F.R.C.S. ENG.,

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AN obsession may be defined as the translation of an idea into a reality; "a false creation proceeding from the heat-oppressed brain," as Shakespeare puts it. The old conception of the term was that of being possessed by some evil demon, or influenced by some wicked spell. History abounds with numerous instances of people becoming blind, deaf, dumb, &c., through sheer fright. The effect of fancy on the mind is well illustrated in the old story of the man, who, after reading a page full of symptoms exclaimed "I've got that disease," and on turning over the leaf, was amazed to find the symptoms described to be those of pregnancy. The experience of Sir Isaac Newton is another example. In a letter (dated from Cambridge, June 30th, 1691) to his friend, the philosopher Locke, he explains how, after gazing for a short time at the reflection of the sun from a looking-glass, he was harassed for several months afterwards whenever his thoughts reverted to the subject by the resurgence of the same subjective picture, and how he had the greatest difficulty in ridding himself of its repeated recurrence.

A man aged 20, of good physique and quite rational in every way, gave the following history: While at work on electric wires a sudden spark was generated; this seemed to "strike his eyes," and at once he became so blind that everything "appeared as in a fog," and he was obliged to get someone to lead him about. On examination the eyes proved to be undamaged; centric and eccentric vision were lost, and perception of light only retained. The pupillary reactions were preserved, thus showing that the retinæ were not rendered anæsthetic by the bright light. Uræmic amblyopia could be ruled out, as there was no albuminuria, the arteries were soft and the blood pressure normal. He was admitted into hospital, and to check his statements, a careful watch was kept on his movements. The nurse in charge, an old hand in detecting malingerers, reported that in broad daylight he would run up against such obvious things as a table, door-post, pillar-box, &c., often severely hurting himself. I was much impressed by one thing in particular, which was his fixed idea that his sight was irrevocably lost. I interviewed the father, who was naturally very anxious about his son's condition, and elicited that the patient was an only child (and this we know "makes three fools") and that the mother was in the habit of writing her boy daily letters of condolence and sympathy.

Arguing on these data—viz., the patient's distress at the thought of permanently losing his sight, the devoted mother's daily letters of sympathy, and the absence of organic damage—I came to the conclusion that the whole trouble was purely fanciful, and I adopted the following treatment. I assured him that his vision would come back, and repeated this emphatically daily, going on the principle described in Humpty Dumpty's poem, "I said it very loud and clear, I went and shouted in his ear." In addition, at my suggestion, the tone of his mother's letters was altered to the more hopeful and reassuring order.

By these means the vision began to improve, continuing to do so daily; after the lapse of a month the sight was quite restored.

NORFOLK AND NORWICH EYE INFIRMARY.—The centenary of this hospital was celebrated on July 11th. On behalf of the medical staff, the Lady Mayoress of Norwich presented to the hospital portraits of its three founders, Dr. L. Evans, Mr. Robert Hull, and Mr. T. Martineau, jun. Mr. F. Eaton, chairman of the committee of the infirmary, in acknowledging this gift and a present of linen from the Lady Mayoress, spoke of the plan whereby the infirmary would in the future become more closely associated with the Norfolk and Norwich Hospital, while maintaining its separate identity. Mr. S. H. Burton, representing the medical staff, recalled the creditable history of the institution, and the Lord Mayor and the Sheriff of Norwich congratulated the infirmary staff and committee on the excellent work in the past and prospects of usefulness in the future.

Medical Societies.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES.

THIS new medical society, formed on June 9th, held its first annual meeting in the rooms of the Medical Society of London, 11, Chandos-street, W., when Dr. DAVID WATSON was formally elected President on a motion by Mr. F. S. KIDD, seconded by Major A. T. FROST. Dr. Watson then delivered

The Presidential Address.

He said that whatever objections there might be to the recognition of venereal disease as a special branch of medical practice, facts had got ahead of arguments and the present situation had to be recognised. This situation had arisen primarily as a result of the work of the Royal Commission on Venereal Disease, and the outbreak of the war had made the study of venereal disease much more urgent. That there were objections to the term "venereal disease" all would admit. To group under the heading venereal diseases differing so much in their manifestations and ultimate effects as syphilis, gonorrhœa, and chancroid, seemed an unscientific method of classification. The only link which the name signified was that the larger proportion of infections was produced by venereal contact. But there was another link of much greater consequence in that they were amenable to similar methods of prevention and control by the health authorities. This would continue to unite these diseases into one group for practical purposes until the time arrived when, owing to the steady fall in their incidence, the specialist has been starved out. But whatever might evolve in the future, the candid acceptance of venereal disease as a specialty was necessary under present conditions.

The General Medical Council had decreed that medical students must receive a course of instruction in venereal diseases. That action definitely established this subject as a specialty, and those who were teachers must not only have an advanced knowledge of accepted practice and doctrine, but must keep in touch with every scientific announcement which had any bearing, direct or indirect, on the prevention, diagnosis, and treatment of venereal disease. It was true that every active member of the medical profession was interested in these venereal conditions, but a group had been created whose members possessed special training and experience and would be expected to add to our knowledge of these diseases. The value to the community of improving our knowledge and of solving the outstanding problems could not be overestimated.

The President said that the Health Department of the Government had shown an admirable activity in recent years in dealing with the question, and the results already achieved showed at least that the position was under control. More had to be done, and in his own contact with many of the members of the profession who were engaged in V.D. work he had learned that they were a body of keen workers imbued with enthusiasm and possessed with ideals which would open up new avenues and pave the way for further advance. There were now in this country over 200 clinics for the treatment of venereal disease, and attached to these were from 300 to 400 clinicians, administrators, and pathologists. In addition, there were many private practitioners working in this line, so that a total of well over 400 medical men and women could be regarded as actively interested in the study of these diseases. The history of modern medicine proved incontestably that when there was a sufficient number of the profession interested in a special branch of medicine, it was of advantage that they should be brought together for the purposes of social intercourse, exchange of views, stimulation of research, and friendly criticism. This was, in short, what the Medical Society for the Study of Venereal Disease aimed to provide. While improving their own education its members might surely also hope to assist in raising the general standard of medical work in venereal disease and to increase the interest of the general practitioner especially in attaining early accurate diagnosis and efficient treatment. It was also hoped that the Society would constitute a common meeting ground for clinicians, health officers, and pathologists.

In discussing possible criticisms against such a society the President dwelt on the importance of taking wide views, and said that for anyone to confine his reading to articles which concerned venereal diseases only would stupidly cramp his usefulness. It was necessary to know what was being done in other fields and to develop the broadest lines of thought and sympathies combined with the keenest application of every available item of knowledge to the special subject in order to gain the best results. The Society must endeavour to obtain a correct perspective, and while encouraging minute attention to detail not lose the cosmic view. It must be its constant endeavour to raise the individual and also the general standard of clinical work in venereal disease, to stimulate research by giving every encouragement both to the clinical observer and the laboratory worker, to coördinate the administrator, clinician, and the pathologist for the scientific study of the many problems confronting the conquest of venereal disease.

In conclusion, the President discussed the need for a literary organ of the Society; the number of applications for membership was 116, a number far short of what was desirable, but it was difficult to reach by circular all those who might be expected to be interested and to a considerable extent the Council relied upon original members to gain additional ones.

Discussion.

Dr. W. FOX, in thanking the President for his address, referred to the active part which Dr. Watson had taken in forming the Society.

Mr. KIDD spoke of the difficulties of getting venereal diseases recognised as a part of hospital work. He was glad that the Society had the approval of the Colleges of Physicians and Surgeons and the Midwives Society, and he believed that Dr. Kay Menzies of the London County Council had joined. No one had done more than the last named to give prominence to the subject. Clinics had already justified their existence in raising up a number of men interested in venereal diseases and in educating students, and the clinics would do more than that in forcing hospitals to have early treatment centres. In the end the clinics would become early treatment centres, and in the next ten years that would accomplish more than prophylactic treatment.

Colonel L. W. HARRISON said that even in the Army, outside those people specially engaged in venereal disease work, there was very little sympathy in their aims.

Election of Officers.

On the motion of Dr. DENYS VINRACE the following were elected as Vice-Presidents: (Ex officio) the Presidents of the Royal Colleges of Physicians and Surgeons, Sir Humphry Rolleston, and Sir Anthony Bowlby; the President of the Dermatological Section of the Royal Society of Medicine, Dr. H. G. Adamson; the President of the Urological Section, Sir Thomas Horder; the President of the Obstetrical and Gynæcological Section, Prof. H. Briggs, Liverpool; Mr. F. S. Kidd, and Dr. Wilfrid Fox.

The following members of Council were also elected on the proposition of Dr. F. F. WARD, Ipswich: Dr. A. Cambell, Portsmouth; Major Frost, London; Dr. D. Lees, Edinburgh; Dr. W. Wyndham Powell, Dr. J. H. Sequeira, London; Dr. F. P. Wilson, Liverpool; Colonel L. W. Harrison, London; Dr. F. N. Kay Menzies; Dr. Morna Rawlins; and Dr. D. Vinrace. Mr. E. R. T. Clarkson was confirmed in

the office of secretary and Mr. Sidney MacDonald elected as treasurer. This was agreed to unanimously.

Mr. CLARKSON, seconded by Colonel HARRISON, then proposed a vote of thanks to his predecessor in office Dr. R. Forgan, who had done most excellent spade work as secretary in furthering the efforts of the President.

It was decided that six general meetings of the Society should be held annually on the first Friday in November, January, March, May, June, and July at 8.30 P.M., and that the next annual general meeting should be held in London.

CENTRAL ASSOCIATION FOR MENTAL WELFARE.

CONFERENCE ON MENTAL DEFICIENCY.

A CONFERENCE on Mental Deficiency, convened by the Central Association for Mental Welfare, was held in the Caxton Hall on Wednesday and Thursday, July 26th and 27th. At the first session, the chairman, Sir LESLIE SCOTT, K.C., Solicitor-General, said that the Association were essentially concerned with prevention, their aim being to get at the mentally defective child at an early age, to give him guidance and help which would develop his imperfect powers, and as far as possible keep him from anti-social conduct. The chairman also urged the importance of educating parents and the public generally to look upon mental deficiency as a disease and not as a disgrace.

Crime and Deficiency.

A paper on Crime and Mental Deficiency was then given by Sir BRYAN DONKIN, who, assuming that the words "mental deficiency" in the title given to the subject on which he was asked to speak were intended to denote the group of cases technically so named in the Act of 1913, thought it unnecessary to dilate on the part played in the production of criminal action by individuals who were the subjects of defective minds from their earliest years, although he believed the menace to the community to be great from the number of unquestionably defective children who are the immediate offspring of similarly affected parents. Although there was no doubt that cerebral deficiency from the earliest years, as well as disorder of brain becoming evident in persons previously of sound mind, are notable factors in many criminal careers, it was chiefly in the cases where the penalty of the crime was death or prolonged imprisonment that the question of the certification of the person as insane and, by implication, irresponsible was of the highest importance. In the consideration of mental deficiency in its practical relation to criminal responsibility, however, he did not confine himself strictly to "mental deficiency" technically so called, on account of the unscientific and arbitrary division which on the assumption of the one class being of congenital and on the other of acquired origin, sharply separates mental deficiency from what was usually called insanity. Cases arose from time to time in which it seemed to the speaker that the only proof of defective mind that a court of justice should require when the plea of irresponsibility on such a ground is set up, ought to be based on just the same kind of evidence that is now required in cases of certifiable insanity. As a type of the somewhat mis-named class of "moral imbeciles" the speaker took the case of a man now undergoing a life sentence to penal servitude, the death sentence having been commuted probably owing to the sharply conflicting medical evidence as to his alleged insanity. In this case the prisoner's callousness and apparent lack of moral feeling were prominent features, and the speaker was personally of the opinion that such individuals should be regarded and certified as insane.

Criminal Defectives.

A paper on this subject was then read by Dr. W. NORWOOD EAST, senior medical officer of Brixton Prison. Dr. East said that the criminal defective may be considered from two points of view, according to whether the condition of defect had been recognised before or after conviction and sentence; and while it would appear inevitable that a proportion of cases should escape detection before conviction, they could be observed whilst serving their sentence, certified if necessary, and dealt with by transfer to a special institution under section 9 of the Act. It was, however, the earnest endeavour of those prison medical officers who dealt with remand prisoners to diagnose the condition whenever possible before trial, and in the prison to which the speaker was attached several hundred cases were examined annually before trial for evidence of insanity or mental deficiency. Dr. East then described the method of examination and the scope of inquiries made in each case received into prison for mental observation, and stated that a very large class seen in prison were those who fall short of certifiable defects and form some of the cases met with in the border-line group of prisoners, requiring anxious care and consideration in reporting upon their mental condition to the courts. The defective as met with in prison may suffer also from hysteria, from insanity, from temporary mental states not amounting to insanity, or from malingering, or indeed from a combination of more than one of these, with such confusing results that a long period of observation may be required before an accurate opinion can be offered. In some cases the distinction between mental deficiency and early insanity can only be decided by prolonged medical observation, and those included in the large group of border-line cases might show at a future date decided evidence of insanity or defect, or, on the other hand, might improve and become normal. Although it was usually a comparatively simple matter to grade defectives according to their educational and intelligence levels, no satisfactory method had yet been evolved by which the emotions, the volition, or the moral sense could be graded, all of which factors had a most important influence on conduct. One of the outstanding impressions borne in upon the prison medical officer was the great desirability of treatment clinics for cases of mental disorder and defect, cases constantly being seen whom observation and treatment at a clinic would almost certainly have prevented from committing a criminal action, as well as cases who having committed an offence and not being certifiable would avoid further crime and probably the necessity for future certification by such treatment and guidance as a clinic would afford.

Correlation with Police Courts.

At the afternoon meeting a paper was read by Mr. STUART DEACON, stipendiary magistrate of Liverpool, his subject being the Need for Correlation between the Police Courts, the Prison Departments, and the Mental Deficiency Act Committees. Great emphasis was laid on the value of the Probation of Offenders Act of 1907 and the Mental Deficiency Act of 1913, which he described as the two great charters of modern days which have already done much towards the reduction of the class of hardened and habitual offenders. It was the practice at Liverpool to remand any offender, concerning whom there was any apparently well-founded suggestion of mental deficiency, to Walton Prison for a period of seven days, and to ask for a report to be furnished by the medical officer of the prison at the end of the remand as to the person's mental capacity. In the case of children a remand was made to the Remand Home (or occasionally to the child's own home), the report in this case being made by the medical officer of the Poor-law infirmary. In the event of a report that the person remanded was certifiable under the Mental Deficiency Act steps were taken to deal with the case in accordance with one or other of the provisions of Section 8 of the Act. It was in connexion with these cases of alleged mental deficients and in the subsequent proceedings that the close coöperation of the bench, the prison officials, and the M.D. Act Committee became so urgent and desirable. The speaker suggested that more care

might well be taken by those in authority in training homes, schools, and institutions for children and young persons known to be rather subnormal mentally, to notify such cases on leaving to an association for defectives, failure in such notification not infrequently resulting in the appearance of the young mental defective in the police court on more or less serious charges. He believed many an offender between the ages of 16 and 21, against whom in inexperienced eyes the charges may appear to be trivial (e.g., vagrancy or disorderly conduct), is just the person who should be made subject to medical inquiry under the M.D. Act. Mr. Deacon finally urged that the spirit of the police-court administration of the Act should be, as in the case of the Act itself, the cure of a patient rather than the punishment of an offender.

Magistrates and Mental Defect.

Mrs. PATRICK R. GREEN, J.P., of Colchester, followed with a paper on the Rôle of Visiting Justices and the Work of Magistrates in Connexion with Mental Defectives. Her experience having shown her an astonishing amount of ignorance and misunderstanding not only on the part of the general public, but also on the part of the magistrates themselves as to their duties under the Act, she described their general powers and duties under the headings of (1) Hearing petitions and making orders, and (2) Visitation in certified institutions. The speaker emphasised the personal responsibility of the justice in hearing petitions, urging that he should come to his own decisions and not feel bound by the medical certificate. An important point made was the duty of the judicial authority to hear petitions presented direct by the parent or guardian on behalf of a defective, whether the case had been to the local authority or not. She deprecated the fact that it was not absolutely obligatory to deal with the defective delinquent under the M.D. Act, urging that legislation was needed both to effect this, and also to place a statutory obligation on all courts to provide the services of a medical expert to advise justices on the mental condition of persons charged with crime. Dealing with the question of probationary leave of absence for the defective in an institution, Mrs. Green characterised this provision—under suitable and stringent safeguards—as a most valuable measure of which more extended use should be made. The advantages of leave of absence, with conditions, apply generally to the higher grade cases, especially those in which mental defect is to some extent called into question, for it was only in their relationship with ordinary outside conditions that mental defect was exhibited.

An excellent discussion, in which many speakers took part, followed the reading of the papers; the chairman pointing out that the so-called "second chance" given to first offenders is only too often the same chance—i.e., he is sent back to the same environment which was to blame for his first lapse. Dr. R. HUGHES, school medical officer, Stoke-on-Trent, pointed out that intelligence defect and moral defect are not nearly so often correlated as people suppose. Dr. HUBERT BOND, Commissioner of the Board of Control, urged the need for coördination between the medical staffs of institutions and other medical men occupying public positions, the plea really being one for fluidity of service. At present only cases in which there was prima facie evidence of mental disability were sent for medical opinion, whereas in his opinion the goal to be aimed at was that the case of *every* prisoner on his first appearance at the courts should be medically inquired into—a procedure which would involve a great deal of time, attention, and skill.

Educational Problems.

At the session on Thursday morning the opening address was given by the Right Hon. H. A. L. FISHER, who said that few educational problems gave him more anxiety than the provision of an effective and sufficient scheme for dealing with the mentally defective children in the country. Fortunately, there was little difference of opinion with regard to the general principles which should form the public policy of the State; these principles being (1) that every child capable of profiting by a course of education in a public elementary school should have that education; (2) that every child unable by reason of mental deficiency to profit by it should be excluded; and (3) that children thus excluded should be divided into two classes—those who can be educated to earn their livelihood in whole or in part and can be taught to manage their own affairs, and those who fail to satisfy these tests, the first being educated in special schools under the Board of Education, and the second handed over to the supervision of the Board of Control. The speaker drew attention to the magnitude of the problem, stating that the total number of mentally deficient children in England and Wales was 31,000, of whom 15,138 are now being educated in special schools. The financial situation at the present time prevented any possibility of extending the work so as to cover the whole ground, and it would unfortunately be necessary not only to consider the reduction in the cost of teaching in the special schools, but also to remove all those children now in those schools who were unable to profit by the education given them, in order to make room for other children, capable of profiting, but at the present moment excluded through lack of accommodation. The consideration of other measures for the care and training of the children of lower grades of mentality might well occupy the attention of voluntary societies such as the Central Association for Mental Welfare, and when the deliberations of these bodies matured, the Board of Education would be glad to confer with them in order to determine how far any scheme could be put into practicable shape.

Economic Difficulties.

Dr. H. B. BRACKENBURY followed with a paper on the Economic Difficulties which Prohibit the Development of Special Schools, and put forward for consideration three suggestions for lessening the cost of special education: (1) The employment of supplementary teachers in place of certificated teachers for the lower-grade children in special schools; (2) a system of part-time education by which the lower-grade children could attend in shifts, and so less staff and accommodation would be needed; and (3) the attendance of low-grade feeble-minded children at part-time occupation centres for training and teaching. At the afternoon session the question of occupation centres for defective children was discussed in some detail by Mrs. A. A. ANDERSON, who stated that the 12 or 14 centres which had so far been started in different areas and on various scales had proved to be enormously successful, and that plans were in hand for a model occupation centre which would serve as a training ground for anyone anxious to start in other areas. Short addresses on the work accomplished by occupation centres in different places were given by various speakers, after which Miss RUTH DARWIN, Commissioner, Board of Control, gave a paper on Working Hostels and other non-institutional methods of dealing with defectives. She pointed out that there was a class of adult defectives for whom permanent institutional treatment was unnecessary, uneconomical, and in some cases not conducive to happiness, these being, however, the very men and women who were unable to fend for themselves in the world, to adapt themselves to changes in their everyday life, or to resist temptation. What was needed in many cases after the necessary training had been provided was a half-way house between unrestricted liberty and the wholly restricted life of an institution. This need would, she believed, be partly met by the provision of hostels for mentally defective men and women where they would still be under detention, but from which they could go out to work by the day. The scheme under the M.D. Act for placing cases under guardianship as an alternative to institutional treatment had been made use of in comparatively few cases, but the speaker believed it to be a method which had great future possibilities of development.

Reviews and Notices of Books.

RADIUM THERAPY.

By FRANK EDWARD SIMPSON, A.B., M.D., Professor of Dermatology, Chicago Policlinic; Director of the Frank Edward Simpson Radium Institute. London: Henry Kimpton. 1922. With 166 original engravings. Pp. 391. 36*s*.

THE author is to be congratulated upon the production of a treatise which is scientific, succinct, comprehensive, and practical. It accurately expresses the present-day position of radium therapy, and the bibliography appended shows that no effort has been spared to render it, so far as possible, a complete record of all recent developments. The first eight chapters are occupied by a consideration of the physics of radium and its emanation, and of the radio-active substances generally; this technical portion has been handled with great skill, a subject which generally proves wearisome and difficult to the non-mathematical mind being presented in a fashion which is both intelligible and interesting. Chapters VI. and VII., which deal with the absorption and filtration of the rays, are of practical interest to the clinician, and the many tables and charts with which they are illustrated afford valuable information. A brief but sufficient summary of the biologic effects of the radium rays follows, and constitutes an effective introduction to the major portion of the book dealing with the treatment of disease. The question of dosage is considered in great detail, and the variations dependent upon the shape of the apparatus, and its distance from the area or growth to be treated, are clearly set forth. The fundamental principles of deep radium therapy, by the methods of "cross-fire" radiation, and "multiple ports of entry" are defined, and the most effective method of obtaining a maximum intensity at a depth, with a minimum disturbance at the surface, indicated. Exception is rightly taken to the employment of the term "milligram-hours" to express dosage, unless it be qualified by figures showing either the amount of the radium used or the duration of the exposure. It is suggested that the distance of the apparatus from the surface should also be given, this factor often being a very important one. The possibility of increasing the sensitiveness of tissues and tumours to radium rays, by injecting them with solutions of various chemicals such as eosin and cholin, or of collosols of the heavier metals, is referred to, but it is pointed out that researches in this direction have not yet yielded any very definite result. The chapters dealing with the actual treatment of disease are illustrated by many excellent photographs—both macroscopic and microscopic—and afford convincing evidence of the possibilities of radium therapy.

Dr. Simpson's personal experiences, references, cautions, and conclusions are unbiased and dispassionate. He makes no claims which are not fully substantiated, and points out clearly those conditions in which radium can only exert an ameliorative and not a curative action. The advantages and disadvantages attaching to the recent method of treatment by the burying in growths of glass ampoules of emanation, without metal screens, are discussed, the opinion being given that this technique should be reserved almost entirely for small localised tumours in easily accessible situations—e.g., tongue, tonsil, lip, vulva, or prostate. The concluding chapters are devoted to radium in internal medicine, and the occupational ill-effects of radium. The precautions which all radium workers should observe to minimise the local and constitutional effects of their occupation are described, and the imperative necessity that they should abstain from radium work for at least two days a week, and should have frequent vacations of not less than a month's duration, is strongly emphasised. It is only in this fashion that the danger of insidious, alarming, and sometimes fatal blood changes can be avoided.

The bibliography with which the book terminates is a most exhaustive one, and comprises practically every paper or monograph of importance published since Prof. Henri Becquerel's first paper "Sur diverses propriétés des rayons uraniques" in 1896.

CANCER OF THE BREAST AND ITS TREATMENT.

By W. SAMPSON HANDLEY, M.S., M.D., F.R.C.S. Surgeon to the Middlesex Hospital. London: John Murray. 1922. Pp. 411. 30*s*.

Mr. Sampson Handley's work on carcinoma of the breast has become firmly embodied in general surgical and pathological teaching; the first edition of his book was exhausted six years ago, and the second edition containing a considerable amount of new work will be welcomed by students and practitioners alike. There are included new chapters on Radiological Treatment, Recurrence and its Operative Treatment, Lymphangioplasty, Paget's Disease of the Nipple, and Injury as a Causative Factor in Carcinoma. As Mr. Handley truly says, Paget's disease of the nipple is one of the least well understood of surgical diseases, and while its ætiology is obscure, its very nature is subject to dispute. His studies show clearly that the majority of these cases, at any rate, are secondary to a carcinoma in the breast itself and are due to lymphatic obstruction following permeation. Chapter IX., on Natural Processes of Repair in Carcinoma, has been rewritten, but we find it the least satisfactory section of the book. The "unrecognised law of cancerous growth" which is herein established has surely been long recognised, for, to quote one example only, the characteristic umbilication of hepatic metastases has always been explained on the lines of central degeneration and peripheral growth. The conception of the epithelial cell as an obligate parasite on the connective-tissue cell has little to recommend it and is not supported by the arguments which Mr. Handley brings forward. The chapter on injury as a causative factor in carcinoma of the breast consists largely of the report of a case in which the doctrine of traumatic carcinoma was accepted in the English High Courts. It is not very convincing, and in spite of the jury's decision in this case the general professional verdict on this doctrine is still non-proven.

Mr. Handley's wide surgical experience and original research make the revised edition of his book a valuable addition to the output of the year.

MECHANISM OF THE BRAIN.

The Mechanism of the Brain and the Function of the Frontal Lobes. By Prof. Dr. LEONARDO BIANCHI, Professor of Psychiatry and Neuro-pathology in the Royal University of Naples, &c. Authorised translation from the Italian by JAMES H. MACDONALD, M.B., Ch.B., Mackintosh Lecturer in Psychological Medicine, Glasgow University, &c. With a Foreword by C. LLOYD MORGAN, LL.D., D.Sc., F.R.S., Emeritus Professor in the University of Bristol. Edinburgh: E. and S. Livingstone. 1922. Pp. 384. 21*s*.

IT is 40 years ago and more since Prof. Bianchi began his experimental researches on cerebral function, which have culminated in this handsome volume, devoted to a consideration of many problems on the borderland of physiology and psychology, and in particular to the vexed question of the frontal lobes. The philosophic breadth and at the same time the rigid minuteness with which these problems are handled are truly satisfying, and provide an excellent corrective for much of the ill-considered and ill-supported theorising which passes muster to-day as a contribution to the study of the functions of the brain. The doctrine that cerebral activities are essentially integrative seems to some to preclude any effort at differentiation, and in some quarters great play has been made with the supposed valuelessness

of the facts of cerebral localisation. Such an attitude of mind, it is safe to say, is not likely to arise if there is any knowledge of cerebral minute anatomy and cerebral physiology. It doubtless appears but an echo of the past to read again in Prof. Bianchi's lucid pages of the controversies of Hitzig, Goltz, Munk, Ferrier, and other protagonists, but when the dust of controversy settles the facts emerge, and these not only are not refuted because ignored by those for whom localisation has no interest, but have been receiving ample corroboration from much more recent researches than those of 40 or even 20 years ago.

In a closely-reasoned argument, based on experimental and clinico-pathological evidence, Prof. Bianchi shows that the general doctrines of cerebral physiology, or of "anatomical psychology," as he likes to express it, still hold; that the parietal and the temporal cortex has demonstrable functions, clinically recognisable; that Flechsig's views of a large occipito-parieto-temporal association area are, in fact, not tenable, and that it is the cortex of the frontal lobes, considered in their whole extent, which is the essential organ of conscious mental activity and of mental acquisition; it is the meeting place of the products of work of the sensory areas. In language no doubt somewhat foreign to the scientific treatises of the day, yet losing nothing in effect because of its picturesqueness, Prof. Bianchi makes claims (on rigid experimental, embryological, comparative anatomical, and pathological grounds, it may be repeated) for the frontal cortex—"the organ where new and powerful conceptions are formed . . . from individual and collective experience of life. . . . It is the chamber of resonance of the somatic ego. . . . It is the throne room of logic . . . utilising the archives of the cognitions, sifting the emotions and impulses, and judging their effects in the light of individual and social experience."

We can think of no greater pleasure the thoughtful neurologist can give himself than to sit down with this volume for a companion and refresh his knowledge with new light on old themes; he will be impressed not only by the amount of information it contains, but also by the indication it affords of a neurological field yet to be gleaned.

PSYCHOLOGY.

A Study of Mental Life. By ROBERT S. WOODWORTH, Ph.D., Professor of Psychology in Columbia University. London: Methuen and Co. 1922. Pp. 500. 8*s*. 6*d*.

IN convenient size, well written and clearly printed, Prof. Woodworth has published an introduction to the science of psychology which is at once authoritative and provisional; it aims both at supplying an ordered presentation of accepted psychological doctrine and at embodying a concise account of the present-day movements of a very active science. How well he has succeeded his readers will surely appreciate.

Briefly, his main line of approach is from the physiological side; or rather, while physiology and psychology are nowhere cleanly separable, mental activities are studied as the performances of the whole individual rather than as executed by the several organs. Thus, activity at the highest integrative levels is shown not to be essentially different from that at other neural levels; on the intellectual side the higher reactions follow the lower. The student is led by logical stages from the more physiological conceptions of reaction, native and acquired traits, and instinct, to attention, memory, feelings, perception, association, reasoning, imagination, and will—in a word, to an analysis of all that is implied by the term "mentality." No breach is made in the continuity of process from stimulation of sense-organ to ideation. While much herein offered for consideration to the student belongs to the psychology of the schools, as occasionally somewhat discounted by the most modern "clinical psychologists," it is none the less indispensable for a complete knowledge of the subject and its presentation is fresh, graphic, and amply illustrated. On the other hand, new theories of unconscious mental activity are discussed; Freudian doctrine of the dream, the sex motive, and so on, is explained and at the same time subjected to not a little criticism; and toward the close, due attention is given to the application of knowledge of psychological processes to the phenomena of psychical dysfunction. Exercises and references are to be found at the end of each of the book's 20 chapters.

Dr. Woodworth's study of mental life is masterly without being dogmatic and comprehensive without undue length, and the simplicity of its style and diction should appeal to the general reader as well as to the student.

L'ENFANT ET SON MÉDECIN.

Third edition. By ALBERT B. BALL, Assistant de la Consultation de l'Hôpital Trousseau. Paris: A. Maloine et Fils. 1922. Pp. 420. Fr.20.

THIS book is a well-arranged dictionary of the diseases of infancy and their symptoms; the appropriate treatment, medical and surgical, is fully gone into, and it affords a ready means of checking the differences between British and French clinical methods in pædiatrics. To the practitioner in Paris it should be especially valuable, as it contains handy references to the hospitals and asylums available for special cases, as well as full lists of the French pharmacopœial remedies most commonly employed.

CARDIAC ARRHYTHMIA AND THE NEOCARDIOLOGY.

By ALFRED WEBSTER, M.D. London: Watts and Co. 1922. Pp. 195. 25*s*.

THE introduction of the polygraphic and electrocardiographic methods has done much to advance our knowledge of cardiac arrhythmia. As a result of the clearer understanding which we now have of the disorders of the cardiac mechanism a simple sphygmogram is sufficient, in most cases, to enable one to distinguish between the different forms of arrhythmia. Dr. Webster in this book has confined his attention to the study of arterial pulse-tracings. The work contains a large collection of interesting records, beautifully reproduced. From these records the author draws certain conclusions which are strongly opposed to the generally accepted views on cardiac arrhythmia. In many cases we do not agree with Dr. Webster's interpretation, and consequently have to discount much of the evidence on which his argument is based. Several records attributed to auricular fibrillation exhibit a dominant rhythm, and cannot therefore be regarded as examples of this condition. In the case of heart-block the argument that this disorder cannot be associated with auricular fibrillation is based on a misconception, since it is the excitation wave and not (as is stated on p. 186) the contraction which is blocked. Again, the contention that heart-block should not exhibit variations in any given case would presuppose that every transient functional modification involves a permanent structural change. Complete and partial auriculo-ventricular dissociation are confused in considering the relationship of the auricular to the ventricular elements in certain of the author's records of heart-block.

Neo-cardiologists would be the first to acknowledge the great value of the sphygmograph at the bedside; but surely records obtained from a clinical instrument of this type should not be chosen in order to disprove a hypothesis based on and amply corroborated by observations made by methods of much greater precision. The evidence obtained from an electrocardiogram is so definite and unmistakable that it must, in the present state of our knowledge, remain unquestionably the final court of appeal. Even a jugular tracing would have been sufficient to establish beyond doubt the identity of most of the types of arrhythmia exemplified in Dr. Webster's records. He adds to our present nomenclature certain new terms which hardly appear to be necessary. His "pulsus trigeminus diminuendo" for example,

as shown in records Nos. 85 and 103, is nothing more than a pair of normal beats occurring between two extrasystoles. The terms bigeminal and trigeminal pulse have now come to possess such a very special and definite significance that their application in a wider sense can only lead to confusion. The more precise our knowledge the more strict must be our terminology, and the synonymous use of such terms as "bigeminal" and "alternating" pulse was only admissible at a time when the fundamental difference between these two conditions was not fully appreciated. The variations in rhythm associated with Cheyne-Stokes respiration, the series of records (310–475) showing alternate phases of slow and rapid action, and the sphygmograms from a case of Stokes-Adams disease are all of exceptional interest. It is a pity that they are not accompanied by jugular tracings which would have added greatly to their value. A time-marker would have been useful in certain cases.

While giving Dr. Webster due credit for the records which are of definite value as a collection of interesting conditions, we do not feel that his book advances materially the interpretation of cardiac lesions from arterial pulse-tracings.

CLINICAL LABORATORY METHODS.

By CLYDE LOTTRIDGE CUMMER, Ph.B., M.D., Associate Professor of Clinical Pathology, School of Medicine, Western Reserve University, &c. London: Henry Kimpton. 1922. Pp. 484. 28*s*.

THE writer has attempted to include chemical pathology, hæmatology, and bacteriology in one small volume, the result being that certain sections have inevitably been cramped. For example, 216 pages are devoted to the examination of the blood, mostly to the microscopic appearance of films. The Wassermann reaction is clearly described, but the section dealing with purely chemical blood investigations is disappointing, since too many techniques are given for each reaction and little space is devoted to the consideration of the diagnostic value of the results obtained. The importance of alkali reserve determinations as a means of diagnosing acidosis is well emphasised, and it is a pleasure to see the simple and efficient reaction of Sellards quoted at some length. The sections dealing with urinary and gastro-intestinal investigations are disproportionately small, and again one is confronted with a variety of techniques, the diagnostic value of each not being critically examined. Undoubtedly the section on cerebro-spinal fluid is the best; here is to be found a full account of the various globulin and colloidal gold reactions.

The volume is concluded with a short account of clinical bacteriological methods, and a list of apparatus required in a modern clinical laboratory. Had the author confined his work more to those methods which have stood the test of time, rather than to those which are receiving momentary attention in certain parts of America, the value of his work would have been greater. For example, no mention is made of the urinary diastase reaction, and the important work of English and French writers on renal and hepatic efficiency tests is entirely ignored.

MERCK'S JAHRESBERICHTE.

Combined Vol. XXXIII.–XXXIV. Years 1919–20. Pp. 366. M.18.

THIS well-known yearly index of recent work on applied pharmacology or "Pharmako-therapie und Pharmazie," as it is called in the sub-title, was commenced in 1887. English and French editions were published from 1893 to 1913, and a Russian edition from 1896 to 1912. Formerly it was scattered broadcast to those who wished to have it; now, in view of the cost of production, it will be sent to applicants at small cost. The present combined volume, containing extracts from articles published in 1919 and 1920, reaches the standard of its predecessors. We can safely say it is the most useful and comprehensive book of its class which exists, and comprehensiveness is as important as accuracy in a publication of this type. The arrangement is alphabetical in order of drugs or groups of drugs, and excellent indexes are provided of the drugs themselves, of diseases for which they are recommended and of authors; these facilitate research. German work receives perhaps a greater share of notice than that of other countries, but the latter is by no means neglected. The extracts lose somewhat in value by the late appearance of the present volume.

EXPERIENCE AND TRUE TEMPERANCE.

By PHILIP N. RANDALL, M.B. Lond. London: Anti-Prohibition League. 1922. Pp. 46. 1*s*.

IN this pamphlet of 46 pages Dr. Randall advocates the cause of "true temperance," as distinguished from teetotalism, in a fair and dispassionate manner. Much stress is laid on the influence of heredity, and the author bases on this some doubt of the relevancy of animal experiments to man, animals being virgin soil, while "in man the soil bears the impress of a very long history of use and custom in the taking of these beverages." In traversing the contention that the total abstinence view is supported by the great decrease in the use of alcohol in the treatment of disease in hospitals, the author commits himself to the doubtful statement that "probably the greater part of the decrease is due to the fact that patients are not kept in hospital nearly so long as formerly, but are drafted as soon as possible to convalescent homes." To Dr. Randall drunkenness is a symptom of which the causes are to be found in the squalid and sordid surroundings in which a large proportion of the population live; in his opinion the disease springs from "the iniquitous system of land tenure and rating in force."

JOURNALS.

AMERICAN JOURNAL OF OPHTHALMOLOGY. June, 1922.—Laura A. Lane contributes a study of Tumours of the Lacrimal Gland, with report of a mixed tumour and bibliography.—W. A. Cassidy and S. A. Gifford show a coloured plate of a decidedly unusual Perimacular Lesion of the Retina. From the fact that the patient was a professional boxer, it is inferred that the lesion was traumatic, though there was no history of a recent blow on the eye. The description in the text does not appear completely to tally with the plate.—W. H. Luedde writes on Amblyopia ex Anopsia, and gives notes on several cases, in some of which vision was regained after treatment, and others in which it was lost from lack of treatment. He remarks on the two schools of thought with regard to this subject: "The greatest mischief wrought by the erroneous beliefs of Silex, Abadie, Schweigger, Alfred Graefe, and their colleagues that there was no amblyopia ex anopsia lies in the failure to encourage prompt and vigorous measures for the restoration of vision in cases of disuse, especially in strabismus."—S. L. Olsho describes and figures a new Protractor Card for verifying the axes of Cylindrical Lenses.—C. E. Ferree and Gertrude Rand discuss perimetry, and describe a new Illuminated Perimeter with Campimeter Features that they have invented. The number of different instruments of this nature which have been put on the market of late years is evidence of the importance now attached to this method of diagnosis, but is somewhat embarrassing to the practitioner with restricted means and limited space.—W. B. Weilder describes and figures a case of Congenital Coloboma of the Lens.—In the section of the journal devoted to proceedings of societies there is a good report of a paper by Sir W. T. Lister, read at the recent International Congress of Ophthalmology held at Washington, on Detachment of the Vitreous. According to Fuchs, this phenomenon is much more rare than was formerly supposed, when observers were misled by artefacts produced by the hardening of the specimens. Lister believes, on the other hand, that it is common during life, and that its presence in pathological specimens is not the result of the fixing reagent, at any rate when formalin is used.

THE LANCET.

LONDON: SATURDAY, AUGUST 5, 1922.

Public Health in 1921.

BY constant reference to his own previous reports and to those of his predecessors in function if not in nominal office, the Chief Medical Officer of the Ministry of Health makes clear that his annual open letter to his Minister must be read only as a chapter in a serial story. This year his report is confined to a thin pamphlet of 115 pages, issued by H.M. Stationery Office at 1*s.* 6*d.*, but neither its small bulk nor its modest price should mislead the public into underrating the value and importance of its contents. Needless to say that, though highly condensed, these are presented in attractive and assimilable form. Sir GEORGE NEWMAN'S style is not quite free from pedagogy, but his earnest effort to propagate his own high ideals is patent, and his appeals never degenerate into mere rhetoric. The only allusion, and that an oblique one, made to the criticism levelled at his office is contained in a preliminary paragraph which defines the limitations thereof. The purpose of the report of the Chief Medical Officer is to "offer information and professional advice," not to "determine policy, prescribe regulations, impose expenditure or control finance—matters which obviously and rightly lie outside its sphere. It records the principal medical work carried out in fulfilment of the instructions of the Minister and of Parliament." In a brief introduction Sir GEORGE NEWMAN points out that while it is true that the nation can buy its health, the goods are unfortunately delivered not on the date of payment, perhaps not for a generation; but public expenditure on national health is something more than an insurance—it is a long-term investment. Then comes a section wherein, according to the precedent set by Sir JOHN SIMON, he reviews in general terms the outstanding features of the health of the people during the year. In connexion with the recent plea[1] for institutional treatment for cases of early heart disease it may be noted that diseases of the heart account for the highest proportion (117 per 1000 deaths) of the total deaths recorded. The maternal mortality rate has decreased from 4·1 per 1000 births in 1920 to 3·9; of the 3323 women who died in child-birth, 1171 died from puerperal sepsis. Though the general rate of mortality in 1921 was the lowest recorded, the diminution occurred mainly in deaths in early life; in the reduction of mortality at later adult ages we have failed to keep pace with other nations, notably Sweden. Sir GEORGE NEWMAN considers that this is due to the generally unhygienic conditions of industrial labour. It is estimated that every year some 14,476,000 weeks of work—upwards of 278,000 years of work—are lost through sickness and disablement in England and Wales alone. Statistics show that it is the minor maladies for which insured patients mostly consult their practitioners, and the extension of preventive methods to minor ailments is an urgent need. In the section of the report devoted to maternity and child welfare, it is noted as satisfactory that in spite of unfavourable weather conditions the infant mortality rate should have risen only to 83 from the record figure of 80 in 1920. As to the function of infant welfare centres, recently the subject of debate,[2] the Ministry do not desire treatment to be given, except incidentally to remove some temporary ailment. The functions of an ideal insurance practitioner, as outlined in the next section of the report, are conceived in a truly broad spirit. Since it is to his direct interest that his insured clients remain healthy, Sir GEORGE NEWMAN sees in the insurance practitioner an ally who might well become the adviser and educator of his patients in the matter of general hygienic principles and a close coöperator with the M.O.H. of the area in which they live. It is noted that a definite maximum of insured patients on any one list has now been fixed in every area, and in no area does it exceed 3000. The appointment of the 31 regional and 5 divisional medical officers of the Ministry has justified itself financially. During the year the number of cases of doubtful incapacity for work referred to them from various sources was 69,543 and, as a result, payments of sickness or disablement benefit ceased in respect of about 41,000 persons; in other ways also these officers have contributed materially to enhance the efficiency of the insurance medical service.

Under the heading of general epidemiology there is nothing outstanding to record. The following infectious diseases were more fatal in 1921 than in 1920: Diarrhœa and enteritis, enteric fever, tuberculosis, and whooping-cough. Vaccination statistics indicate that only about 40 per cent. of children are now vaccinated at birth, and the table of the vaccinal conditions of 322 out of the 336 cases of small-pox occurring during 1921 shows evidence of the increased risk to the nation as a whole that this implies. As to enteric, during the year reference is made to the epidemics involving Bolton and its contiguous districts and the Clay Cross urban district; there occurred also a few small outbreaks probably attributable to polluted shell-fish. Epidemics of scarlet fever are recorded which, though mild in type and associated with a low mortality, yet imposed a severe strain on the institutional resources of the country; and a hint that the present administrative methods of dealing with this disease are susceptible of improvement suggests that far-reaching changes in policy may eventually be decided on. As to diphtheria, the danger of delaying antitoxin treatment pending bacterial confirmation is again emphasised and also the inadequacy of a dose of less than 8000 units. The recrudescence of influenza in milder form in the winter 1921–22 is compared with its incidence in 1895, following pandemics of 1918–19 and 1892 respectively. Incidentally there is no evidence that persons affected in 1918–19 were immune during the 1921–22 outbreak. Encephalitis lethargica has progressively increased from 524 cases in 1919 and 844 in 1920, to 1470 in 1921, but has become less severe in its clinical manifestations. Polio-encephalitis and acute polio-myelitis have increased somewhat, while cerebro-spinal fever shows a diminution from 772 in 1919 and 583 (taking the larger of two alternative figures given in the report) in 1920, to 411 in 1921. No case of human plague occurred in England and Wales during 1921, though two plague-infected rats were found in Liverpool. Most of the patients who contracted malaria during the war have now recovered, and the number of new indigenous cases detected and confirmed in 1921 amounted only to 12. Investigations are being made as to the conditions of life in this country of various species of

[1] THE LANCET, 1922, i., 1241; ibid., 1922, ii., 18 and 138.

[2] THE LANCET, 1922, ii., 132.

anopheles mosquito. Bacillary dysentery, occurring in a boys' school, was probably introduced by two scholars recently arrived from Baghdad.

To the sections of the report dealing with tuberculosis and venereal diseases we shall have occasion to return. At present we need only point out to pessimists in regard to sanatorium treatment that Sir GEORGE NEWMAN is not among their ranks. He contends that in view of the unsuitability of some of the cases selected, of the short period of treatment, and of the early return to hard work in an unsuitable environment, residential treatment should not lightly be condemned as a failure—in fact we should be encouraged that results have been so good. Notification and compulsory powers of treatment for cases of venereal disease are considered wholly impracticable until efficient and sympathetic treatment is completely available and until and unless public opinion is generally in favour of such action. It would appear that the great majority of practitioners fail to take advantage of the facilities now offered under the venereal diseases scheme. The relations of food to health and disease, national and international medical intelligence and coöperation, are discussed in further sections, while another is devoted to the problems of medical and sanitary administration. Sir GEORGE NEWMAN recognises a tendency for the clamorous demands of the special services to overshadow the fundamental purposes of sanitary government, the provision of a sanitary environment and the maintenance of the general health. Yet a pure water-supply, proper drainage, water carriage in urban areas, the sanitary disposal of refuse, the prevention of overcrowding, the enforcing of repairs and cleansing of houses, are necessary to all classes alike; rich and poor are bound together in one common interest in them. Expenditure on these depends on no passing fashion, but on past experience and proved principles, and the money spent is invested in no speculative stock the future value of which cannot be predicted. Sir GEORGE NEWMAN admits that in these directions lies most of that public health which can truly be said to be purchasable in the present state of knowledge. A pure water-supply is probably the first of all sanitary requirements, and in this English towns and cities come second to none; we may join him in the hope that some day a pure atmosphere may also be achieved for them.

The Prevention of Post-Operative Adhesions.

OF late years much experimental work has been performed with the view of preventing the formation of post-operative adhesions. WILLIAMSON and MANN [1] present the results of further experimental studies carried out in the Mayo Institute. They point out that the methods employed to prevent peritoneal adhesions may be divided into three groups: (1) prophylaxis; (2) the use of foreign substances for the purpose of keeping the injured surfaces away from one another; (3) the retardation or inhibition of some element in the process of healing. It is granted, however, that a certain amount of adhesion formation is part of the process of healing and in this respect should be properly guided by the surgeon, not necessarily prevented. The authors briefly review the large number of methods and substances which have been recommended and used in order to prevent such adhesions. Since it is clear that the formation of adhesions varies not only individually but in different species, experiments carried out on animals may not necessarily give the same results when applied to man, although likely to supply important relative information. The present experiments were mostly on dogs. The liver being exposed, areas of its surface were gently traumatised with gauze until bleeding occurred. The material to be tested was placed over the traumatised surface of the liver and the abdomen was then closed. After a definite period the abdomen was reopened so that the formation of adhesions could be visually determined. The substances used to prevent adhesion can be divided into three groups: (1) fluids; (2) substances which are absorbed; and (3) substances which become organised. Each has some unsatisfactory element. Of the many substances employed, such as paraffin oil, olive oil, lanolin, boric acid and lanolin, sodium chloride, iodine, ether, glucose, dextrin, silver foil, cargile membrane, catgut and rubber dam, none was of any value in the prevention of adhesions and some were definitely harmful. Experiments were then made with a gum-acacia gelatin mixture, for the preparation of which careful details are given. This material was used in a large series of experiments of which the results on the whole were satisfactory. The surface of the liver healed well under the solution, but bearing in mind the marked individual variations in adhesions which may develop, the authors hesitate to state that it is of much practical value. In fact, they conclude a valuable study by the conservative statement, "Our investigation of the various substances recommended for the prevention of peritoneal adhesions convinces us that surgeons are not justified in using them in the abdominal cavity."

In spite of all the work that has been done to prevent post-operative adhesions surgeons are to-day beginning to realise that their importance has been greatly exaggerated. It is becoming quite clear that of the very large number of unsatisfactory laparotomies in which failure has been regarded as due to the formation of adhesions, only a very few reveal such adhesions at subsequent operation or are relieved by their separation. Moreover, it is well known that extensive adhesions may exist in the abdominal cavity and lead to no symptoms whatever. That a fibrous band may at times produce a mechanical intestinal obstruction is beyond question, but ill-defined symptoms such as pain and discomfort are certainly much less frequently due to the formation of adhesions than to the persistence of some lesion, such as ptosis or atony of the intestinal canal, which has not been relieved by the first operation. There is a tendency to-day to forget the work of the late H. L. BARNARD, who invented the epigram that the cause of the persistence of adhesions is the persistence of the cause of the adhesions. There can be no doubt that this is as true now as it was then. If there is any persistent sepsis, infection, or foreign body, adhesions will persist and will extend. Thus there is to-day a tendency for the pendulum to swing back as regards the use of drainage-tubes after an infective lesion of the abdomen. Only a few years ago it was the custom as far as possible to dispense with drainage-tubes in the pelvis after acute appendicitis in the belief that the presence of such tubes led to the wide formation of adhesions. More recent statistics and experience have shown that intestinal obstruction is much more common without than with the use of such tubes, and if these cases are operated upon there are nearly always found to be

[1] Williamson, C. S., and Mann, F. C.: Post-Operative Peritoneal Adhesions, Surgery, Gynecology, and Obstetrics, vol. xxxiv., No. 5, p. 674.

small areas of pus in the centre of the adhesions. In other words, the cause of the adhesions, the pus, has persisted. On the other hand, if there is no such cause the rapidity with which adhesions become absorbed is remarkable. All surgeons are conversant with cases in which an operation has been performed for an acute infection and widespread adhesions have been revealed; while an operation undertaken several years later for a perfectly different condition may show that the whole of such adhesions have entirely disappeared. It would thus seem that the crux of the matter is to remove the cause of the adhesions; if this is found possible, only rarely will their persistence cause further trouble. If the cause is completely removed any attempt to prevent adhesions will generally be unnecessary and may even be dangerous.

Blood Groups and Paternity.

THE old adage has it that it is a wise child that knows its own father. Superficial resemblances count for little, and family likeness can always be seen by those who intend to find it. Launcelot, too, was right in telling blind Gobbo: "Nay, indeed, if you had your eyes, you might fail of the knowing me: it is a wise father that knows his own child." Forensic medicine has long sought for objective proof more cogent than that of Smith the Weaver in supporting Jack Cade's claim to be grandson of an earl: "Sir, he made a chimney in my father's house, and the bricks are alive at this day to testify it; therefore deny it not." Even the finger-print, that sign-manual which identifies the individual throughout a long life, has not been shown by Dr. HENRY FAULDS's exhaustive study to carry on from parent to child. A point of great interest and importance in its medico-legal bearings was raised by the counsel for the respondent in a case which has recently ended without a verdict in the Divorce Court. Counsel is reported to have said that—

"It is now possible by medical and clinical examination to form a very helpful diagnosis as to paternity by testing the blood of the father and of the child, but unfortunately that test is of no value at all where the child, as in this case, is less than one year old."

This statement, if correctly reported, consists only of half-truths. It is unnecessary to repeat here the facts now well known concerning the four blood groups found in human beings, but the method of their inheritance may be less generally appreciated. A large number of observations have been made by a few observers on the familial distribution of blood groups, and it seems to be clearly established that they are inherited strictly according to the Mendelian law. First shown in 1910 by E. VON DUNGERN and L. HIRSCHFELD,[1] observations have been published since by REUBEN OTTENBERG,[2] J. R. LEARMONTH,[3] and GEOFFREY KEYNES.[4] OTTENBERG's review is well summarised by Dr. G. T. WESTERN in the August issue of *Medical Science*. Most of the observations have been made by testing a number of families through two generations only, but KEYNES traced a blood-group pedigree through four generations comprising 59 individuals, the result being in complete accord throughout with MENDEL's requirements.

It is believed that the inherited factors consist of two positive qualities and their corresponding negatives. Using the notation of W. L. Moss, the presence of one or other quality constitutes groups II. and III.; the presence of both constitutes group I.; the absence of both constitutes group IV. On this hypothesis parents both of group IV. can only produce children belonging to group IV., or, in other words no positive quality can appear in the child that is not present in one or other parent. Per contra, positive qualities present in the parents do not necessarily appear at all in their offspring. Consequently, blood-group tests give evidence of paternity in a negative sense only—that is to say, the presence in a child of a quality which is found in neither parent may be held to prove that the supposed father is not the real father; whereas the absence from a child of such a quality which is present in one or both parents can be held to prove nothing, unless a full pedigree can be ascertained for at least three generations on each side. The evidence, therefore, to be derived from blood tests *might* be conclusive and settle a difficult case out of hand. In many instances, however, the tests would afford no help whatever. The point raised by counsel concerning the uselessness of the test in children under one year of age is also not quite accurate. It appears to be true that the reactions are often not developed in the serum until some time after birth, but the corpuscles usually show their characteristic reactions at birth or very soon afterwards, so that the blood group of an infant can be satisfactorily determined. Counsel's statement may therefore be amended to run as follows:—

"It may now be possible by medical and clinical examination to obtain scientific proof of illegitimacy in certain cases by testing the blood of both supposed parents and of the child, but such tests may be found to give no useful information whatever."

The subject involves a number of difficult conceptions and evidence derived from it would tax the comprehensions of most juries to their uttermost. Nevertheless, the facts rest on so secure a basis that the test is sure to be used in evidence sooner or later.

[1] Zeitschr. f. Immunitätsfschng., 1910, vi., 284.
[2] Jour. Immunol., 1921, vi., 363.
[3] Jour. Genetics, 1920, x., 141.
[4] Blood Transfusion, Oxf. Med. Publications, 1922.

OVERSEAS OFFICIAL MEDICAL REPORTS.

AT the end of this issue of THE LANCET will be found the third of a series of abstracts of Indian official medical reports. Some of our readers may find that these and similar reports on the health conditions and sanitary administration of our Indian and Colonial possessions appear at such a long interval of time after the occurrences recorded as to be insipid, if not altogether unprofitable. Circumstances may have changed in the intervening period and the impression produced may be far from correct in regard to the state of affairs at the time of the appearance of our notice. It is, however, quite clear, from the nature of the case, that these reports must be in some degree belated in their publication. Detailed and statistical records dealing with tens of thousands of square miles of country, and inhabitants by the million, cannot be got together, collated, and annotated quickly. The reports have to be composed, printed, corrected, and distributed. It is inevitable that we, in the middle of 1922, should be reviewing reports written six months earlier, and relating to the twelve months preceding. It is to the credit of our administrative authorities at home that they issue their reports as a rule within a year of the termination of the period for which statistics are furnished. In regard to India, and many of our Dominions overseas, the same punctuality cannot be expected. It may frankly be admitted that these reports are not "news," but they constitute records from which

useful lessons can be drawn, and in accordance with which future policy can be constructed; they form also a series of valuable references. Our endeavour is to extract from them the most important and noteworthy items, and so to provide our readers with a compendious record of public health progress in our Overseas Empire. In the report on Sanitary Administration in the United Provinces in India (1920), noticed in last week's issue, and referring to a population (47,000,000) approximating that of the British Isles, the Sanitary Commissioner states that, although the infantile mortality (220·2 per 1000 births) shows some reduction on the decennial averages of 232·3 in 1911–20, and 255·0 in 1901–10, "it is deplorable that such a high infantile mortality should continue from year to year." The infant mortality ratio is very generally considered to be a valuable indication of the sanitary condition of a population, and we think that public health administrators will agree with Major C. L. DUNN. At the same time, it appears from his report that a great deal has been done in many ways to improve the existing conditions. Nearly six million patients were treated at the various hospitals and dispensaries throughout the province. The health of the jail inmates was, on the whole, satisfactory as regards serious illness, two-thirds of the prisoners gained weight, and the death-rate was actually lower than that of the civil population for similar ages. Over and above considerations such as these, our readers will find in the reports abundant material for a study of the biologic factor in public health problems on which Dr. A. K. CHALMERS laid stress in his address (printed on p. 265) to the Public Health Section of the British Medical Association.

WAR ON WOOLSORTERS' DISEASE.

THE fear of anthrax which has so long overshadowed the woollen industry bids fair soon to be abolished. For many years the Factory Department of the Home Office has been endeavouring to minimise the risk by removing dust in the opening processes and suspicious blood-stained material. These measures have not proved sufficiently efficacious. Finally, following upon the advice of a Departmental Committee appointed to consider the question, the decision was arrived at to construct a disinfecting station at Liverpool, where all East Indian goat hair and Egyptian wool—which have been found to be particularly liable to be infected—must be compulsorily disinfected on import before sale. The materials at the station are subjected to formalin by a process designed by Mr. E. DUCKERING, who is now in charge of the station. After a year's experience the Home Office are now able to report that the process is a practical success. Wool, so far from being damaged by the treatment, is found to command a higher price. The charge for disinfection, which is applicable to other material than wool, such as hair and bristles, is 1½*d.* per pound. About half the cases of human anthrax in Great Britain originate from imported wool and hair, so that in the immediate future mortality from this cause should be reduced by fifty per cent.

TRANSLATION OF THE BRITISH PHARMACOPŒIA INTO CHINESE.—The London Chamber of Commerce has been in communication with the British Chamber of Commerce in Shanghai relative to a proposal that the British Pharmacopœia should be translated into Chinese, which, it is believed, would, if carried out, be of great advantage to the medical profession, and also to British trade in China. The Chemical Trade Section of the Chamber appointed a special committee to consider this proposal, and that committee has reported that, in its opinion, it is advisable that an abridged edition of the British Pharmacopœia should be translated into Chinese, with therapeutical notes as an appendix. Action is being taken accordingly; in order to meet the necessary expense of translation and publishing the committee has instituted a fund to which, so far, nearly half the amount required has been subscribed. An appeal for further guarantees is being issued to the British manufacturing houses directly concerned.

Annotations.

"Ne quid nimis."

TREATMENT BY ARTIFICIAL PNEUMOTHORAX.

NOT least among the many important functions of the Medical Research Council is that of collecting, sifting, and distributing information bearing on advances in therapeutics. An example of its efficient staff work in this field is to be found in the report on Artificial Pneumothorax,[1] prepared by Dr. L. S. T. Burrell and Dr. A. S. MacNalty. Acting on behalf of the Tuberculosis Committee of the Council, they have brought together the chief scientific and practical considerations now available for making an estimate of the therapeutic value of this procedure. The report consists of two parts. The first deals with the broad outlines of the subject, the selection of suitable cases, the technique, dangers, and complications of the operation, and the results achieved by continental authorities, and by Dr. Burrell, whose first 150 cases are analysed in tabular form. The second part includes a series of reports on their personal experience in this country by Drs. Blanford, Esther Carling, Morriston Davies, Felkin, Fernandez, Lillingston, Lucas, Parry Morgan, Vere Pearson, Riviere, Rolleston, Sutherland, Tattersall, Jane Walker, Wingfield, and de Carle Woodcock. The number of patients treated by these physicians is between 14,000 and 15,000, and the verdict as to the great value of this treatment is unanimous. As Dr. Burrell and Dr. MacNalty point out, the induction of artificial pneumothorax in pulmonary disease, especially in selected cases of chronic pulmonary tuberculosis, is a great advance in therapy. Slight differences of opinion still exist as to the selection of cases by the physician who may "hesitate between the Scylla of treating too early a case and the Charybdis of being faced with a case too advanced for operation." In carrying out this procedure, however, "he will find all authorities agree that he will be giving his patient the best possible chance of recovery." So, tardily but surely, treatment by artificial pneumothorax has come into its own, justifying the faith of that small, and comparatively obscure, band of workers who, since 1910, have laboured for its recognition in this country.

There would be no object in pointing out that we have been very dilatory and a little provincial in our attitude towards lung collapse therapy, did our sins of omission belong strictly to the past. Unfortunately, this is not the case. The success of the artificial pneumothorax has opened up far-reaching possibilities and has shown how the principles on which it is founded can be exploited in many new ways. Thoracoplasty, for example, has achieved such success in the hands of Profs. Saugman, Sauerbruch, Bull, and others that it has already robbed total pleural adhesion—that insuperable obstacle to pneumothorax treatment—of most of its terrors. But so long as well-to-do patients continue to travel to the continent to enjoy the benefits of this treatment, and the poor have to dispense with it altogether, we cannot rest satisfied with our own achievements. Thoracoscopy and cauterisation of pleural adhesions, as devised by Prof. Jacobaeus, of Sweden, and simultaneous, bilateral, partial pneumothorax as advocated several years ago by Dr. Parry Morgan and recently by Dr. Barlow and Dr. Kramer of the U.S.A., deserve close attention. Thoracoscopy and cauterisation of pleural adhesions have assuredly come to stay till specific treatment replaces mechanical measures, and of the success of cauterisation in selected cases there can be no doubt. As for the simultaneous, bilateral, partial pneumothorax, its value is still in doubt, but if it fulfils what its American sponsors promise, its importance will be little short of revolutionary.

There is a wider aspect of this subject which ought not to be overlooked. Operative treatment, including

[1] Report on Artificial Pneumothorax. Special Report Series, No. 67. 1922. 2*s.* 6*d.*

artificial pneumothorax, having become a highly important factor in the treatment of pulmonary tuberculosis, it is well to inquire whether or not there is a reasonable prospect of adequate facilities being provided in this country for practising and developing this system. In Norway and Denmark the importance of this system is already so fully realised that institutional treatment is, as a rule, given preference to ambulatory, dispensary treatment. No one would seriously advocate dispensary instead of institutional treatment for the insane on the ground that the former is less expensive. The good work of Sir Henry Gauvain at Alton has also demonstrated the superiority of institutional over ambulatory treatment in surgical tuberculosis. Pulmonary tuberculosis is still more in need of the skilled and constant supervision which only an institution can supply. But of late years the authorities concerned with the direction of the campaign against tuberculosis in this country seem to have sacrificed institutional treatment to dispensary treatment on the ground that the latter was more cheap. The determination of the duration of treatment in a sanatorium is left to the tuberculosis officer instead of to the superintendent of the sanatorium in which the patient is being treated. Efficient sanatorium treatment is being crippled in other ways, and recently the request for an X ray installation by the superintendent of a sanatorium with over 100 beds was refused by the authorities on the ground that an X ray apparatus was a luxury and not a necessity. It is not, therefore, surprising that initiative in sanatorium work is being stifled, and that none of our public sanatoriums can compare with the best abroad. Some two score years ago it would not have mattered so much if sanatoriums were degraded to the position of second-rate convalescent homes. Now a much higher standard of sanatorium treatment has been set, embracing as it does a highly technical and skilled system. And unless adequate facilities can be provided for putting this system into effect, it would be better if sanatoriums were dispensed with altogether. For a "second-best" policy must sooner or later ruin the reputation of sanatorium treatment at its best.

EARLIEST CHANGES IN EXPERIMENTAL XEROPHTHALMIA.

XEROPHTHALMIA is one of the well-recognised lesions that can be produced experimentally by feeding animals with diet deficient in vitamin A. It is generally assumed that these lesions have their origin in the cornea, which in the advanced stage of the condition becomes markedly affected. A. M. Yudkin and R. A. Lambert,[1] by feeding a series of young rats weighing about 45 to 50 g. on a diet deficient in vitamin A, have come to the conclusion that the eyelid rather than the cornea is primarily affected. The diet consisted of casein, mineral salts, lard, and yeast. After 45 to 60 days, the first evidences of eye changes developed—watery lacrymation with a sero-sanguineous conjunctival secretion, becoming after a short time somewhat viscid. Histological examination of the eyes with the eyelids attached showed early focal lesions in the epithelial lining of the lids, including localised foci of degeneration of the epidermis with cellular infiltration, which in some cases extended into the subdermal tissue. In all these early cases the cornea was found uninvolved, and there was no cellular or vascular reaction or degenerative changes in the cornea itself. The widespread keratitis, resulting from deficiency of vitamin A, does not therefore begin in the cornea, but has its origin in the lids, so that in this respect the sequence of events is the same as in some of the severer types of acute and chronic conjunctivitis which are frequently complicated by corneal injury, with infection and ulceration of this structure. The marked changes in the lacrymal glands and their secretion associated with this experimental xerophthalmia were also studied. In the early stages the gland appeared little altered, in the advanced cases markedly so. In xerophthalmia, the lacrymal gland may be the seat of a marked pathological change, either degenerative or inflammatory in nature. Such changes are much more marked in xerophthalmic than in normal rats. Variations in size, form, and staining properties of the gland cells are frequently seen and are probably referable to functional disturbances related to the ophthalmia. These changes may account for some of the phenomena of xerophthalmia, particularly the drying of the cornea in the later stage of the condition.

[1] Soc. for Expt. Biol. and Med., xix., No. 8, 1922.

THE ROYAL SANITARY INSTITUTE AT BOURNEMOUTH.

THE thirty-third congress of the Institute held at Bournemouth from July 24th to 29th was a notable success. Over 500 delegates attended, including representatives of our Overseas Dominions, of foreign countries, and of various departments of the Home Government. Major-General Seely, in his presidential address, covered a wide field. He hoped to see a great development of the dairy industry in this country, since we wanted more milk and cleaner milk. He thought the grading of milk would raise the standard, and spoke approvingly of the work of the recent departmental committee towards securing uniformity in methods of meat inspection. Referring to the school medical service, he pointed out that in many districts there seemed to be an inclination to go back rather than to go forward, and that out of 317 education authorities there are still 76 which have made no provision for dental defects, 26 which entirely neglect the treatment of defective vision, and 95 which make no provision for diseases of the throat and nose, so common among the school children. Touching on industrial welfare, he referred to the broken time and unemployment caused by preventable sickness. Sir Arthur Newsholme's address to the Sanitary Science Section on "The Relative Rôles of Compulsion and Education in Public Health Work," already published in our columns, attracted a large audience and aroused widespread interest. Sir George Newman, in opening the proceedings of the Maternity, Child Welfare, and School Hygiene Section, laid stress on the need for these services being carried out as far as possible by the same medical and nursing staff. He struck an optimistic note in emphasising the reduction in infant mortality of recent years and the great advances since the school medical service had been instituted, as evidenced by the disappearance of gross verminous conditions and the lessened frequency of disabling diseases among the school children. He disapproved of unwise economy, and appealed to his hearers not be to discouraged by temporary curtailments of expenditure, but to remember that we were working not for next year but for generations to come. Prof. Leonard Hill, in a popular lecture, illustrated by lantern slides, of sun treatment at Hayling Island and at Leysin, dealt with clean air and the power of the sun to cure disease. Smoke was condemned not only on account of the immediate effects on health owing to loss of sunlight but also for its more remote effect in reducing the available supply in towns of that necessary item in our dietaries—fresh green food. The Lord Mayor of London (Sir James Baddeley), in presiding over the conference of representatives of sanitary authorities, took the opportunity of uttering a warning against ill-advised schemes of economy.

In opening the proceedings of the Industrial Hygiene Section, Mr. Gordon Selfridge urged employers to adopt the golden rule in dealing with their employees, and mentioned that in his own business the term "employees" had been replaced by "members of the organisation." Sir Henry Tanner, in his address to the Section of Engineering and Architecture, stressed the need for a research institute for the building industry and for the frequent revision of by-laws so as to keep pace with continually changing conditions. He pointed out that the recommendations of the Smoke Abatement Committee, appointed before the

war, had not borne fruit in the adoption of smokeless methods, and that a research institute could do useful work in this respect. Papers on a large variety of topics were read. Amongst the subjects giving rise to interesting discussions were the methods of securing continuous treatment of persons infected with venereal diseases, fuel in its relation to health, the milk question, the regulation of the distribution of milk and food at maternity and child welfare centres, school medical services in certain preventive and curative aspects, and the need for an improved midwifery service and for extension of maternity and child welfare work. Apart from the repeated protests against unwise economy in public health administration, perhaps the keynote of the congress was the need for the education of the people how to lead a healthy life in the widest sense of the expression, not forgetting the building of character and self-control. At each section a special appeal was made to those present to support the efforts in this direction which are to be made during Health Week—Oct. 8th to 14th, 1922.

THE FALLACY OF THE SINGLE MILK-FAT TEST.

REPORTS of recent prosecutions for the sale of milk deficient in fat show that, in some cases, local authorities have taken action against the vendor on the result of an isolated test. Action of this kind is inconsistent with our present knowledge of the causes of variation in the milk-supply. The milk producer has in the cow an exacting partner in his business and one who has never been consulted as to the fat-content of her produce, in which there is a considerable range of variation. The first cause is irregularity in the times of milking; if, for instance, the cow is milked at 6 A.M. and 6 P.M. she will give milk having nearly the same percentage of fat. The requirements of the retailer and consumer, the times of trains, and the convenience of milkers, however, generally outweigh the cow's demands in respect of milking time, the intervals being irregular to suit the exigencies of the case. The extent of divergence from equal intervals is shown in the difference in the quality of the milk, it being poorer after the longer interval which generally occurs at night and affects the morning's yield, whereas the milk taken after the shorter day interval is correspondingly richer. In this way the producer is at a disadvantage, for though the afternoon milking may be well above requirements in the fat-content, the morning's milk is likely to fall below the limit laid down by the Sale of Milk Regulations. The work of Droop Richmond indicates that the difference in the percentage of fat as between night and morning milk has gradually lessened during the last 20 years. Nevertheless, the cow still reserves a great capacity for reflecting in the fat-content of her milk such irregularities as are occasioned by the exigencies of hay-time or the delinquencies of milkers on Monday mornings. These facts are sufficient to show the fallacy of the single milk-fat test and the need for sampling both morning and afternoon milk from the same supply. If from any of the causes mentioned the fat falls below 3 per cent. in the morning's milk, the evening sample will be so much above this limit as to indicate the reason; for if the deficiency were caused by the fraudulent extraction of cream from one milking there would be no corresponding increase in fat-content in the next. There are other causes which accentuate the difference between the morning's and afternoon's milkings, rendering the former liable to a sudden fall in fat-content, temporarily bringing it below the legal limit. Foremost among these is any sudden drop in the temperature of the air, which has been shown to decrease the percentage of fat in the milk, more especially in the months of April, May, and June. All causes of variation are accentuated in the case of individual cows, and the mixed milk of a small herd is liable to greater variation than the milk of a large herd. A further possibility of a single test being abnormal is found in the great difference between the first and last drawn milk of an individual cow. The first drawn milk often contains less than 1 per cent. of fat, the last drawn milk or strippings frequently shows over 10 per cent.; hence if a cow is improperly milked a single sample may show deficiency as a result. Breed, and in some cases bad feeding, may influence the quality of milk, but these are factors within the direct control of the producer and against which he must safeguard himself. Sufficient has been said to show the fallacy of the single milk-fat test as a basis for prosecution, and from such an ordeal the producer and vendor have every right to be protected.

LUMINAL IN EPILEPSY.

IN the treatment of epilepsy, luminal has established itself far more widely on the continent and in America than in this country. Out of a large and ever-increasing literature little has appeared in English medical journals. Dr. F. Golla recorded last year[1] his experiences with the administration of luminal to out-patients, noting its value in the different types of seizure and seizure-groups in ideopathic epilepsy, and comparing its effect with that of bromide. Dr. J. Tylor Fox[2] wrote favourably of its use in limiting the frequency of the convulsive attacks at a residential colony for epileptics, while in our current issue Dr. W. Johnson confirms the benefits that may be obtained by its use, from the records of his own series of 25 cases. Luminal suffers from a variety of alternative names which may well be avoided. Composite words based on graphic formulas, such as phenylethylmalonylurea, mean little to the practitioner and should be reserved for the laboratory, while gardenal is a word that has no meaning for anyone. The important facts about the composition of luminal are that it is first cousin to veronal, and that it is a sedative drug. All sedative drugs will reduce the number of convulsions in epileptics if given in large enough doses, and the ideal drug that we require is one that will give the maximum anti-convulsive effect with the minimum sedative effect. The bromides and luminal come nearest to this ideal, but the fact that they are sedatives should never be forgotten. Failure to remember this has led to carelessness in the matter of dosage, and is responsible for much of the discredit into which bromide has fallen. If a drug is to be of general use in epilepsy it must be able to control or arrest convulsions in doses so small that any general sedative effect is avoided. Luminal is an alternative to bromide and possibly of equal, if not superior, value; but it will lose its reputation unless practitioners are careful to prescribe it for epilepsy in small doses. To give more than four or five grains a day, especially to out-patients who are necessarily not under continuous supervision, is to ask for toxic effects, and to give a handle to the critics. The solubility of the sodium salt makes it handy for prescribing, and if the solutions are not kept for longer than a week there appears to be no depreciation in strength.

ANOXÆMIA AND THE ADMINISTRATION OF OXYGEN.

INTERFERENCE with the pulmonary mechanism resulting in a deficient supply of oxygen to the tissues, as in cases of lobar pneumonia, partly expresses itself as cyanosis. In the current number of the *Journal of Physiology* N. Morris describes his attempt to ascertain the variations in the oxygen content of the blood in varying degrees of pulmonary ventilation. The oxygen content of the blood in anoxæmia, anæmia, and other conditions was determined in the cat, including the "head of oxygen" in asphyxia. By this term is meant the difference between the oxygen contents of arterial and venous bloods, and it was found that this difference is not constant even in the same animal; when the saturation of the arterial blood reaches about 20 per cent. the head of oxygen becomes very small and may even be a negative one. It is suggested that this

[1] Brit. Med. Jour., 1921, ii., 320.
[2] THE LANCET, 1921, ii., 558.

may be explained by the oxygen consumption of the pulmonary tissue. The saturation of the venous blood depends not only on the saturation of the arterial blood but upon the nature and condition of the tissues drained by the vein. Pneumococcal infection, whilst it may produce a lowering of the percentage saturation of the blood, does not cause a fall in its total oxygen capacity. In order to determine to what extent the oxygen content of arterial blood might be decreased without marked interference with the powers of oxidation in the tissues, experiments were made on anæsthetised cats. Interference with the pulmonary mechanism on the head of oxygen was achieved by pneumothorax, by occlusion of one bronchus, and the use of histamine, whose main action is on the bronchial musculature and pulmonary arteries. It was found that unilateral interference produces a fall in the oxygen saturation of the blood, both arterial and venous, but a small increase in the head of oxygen. Interference with the respiratory exchange in both lungs, as produced by injection of histamine, partial blocking of both bronchi, and induction of asphyxia leads to a decrease in the arterial oxygen saturation and a fall of the head of oxygen. It was found that administration of oxygen subsequent to interference with the pulmonary mechanism raises the oxygen saturation of the arterial blood to normal level, while oxygen administration antecedent to the induction of pneumothorax and continued thereafter prevents any fall in the oxygen saturation of the arterial blood. These observations have an obvious bearing on the therapeutic value of oxygen administration.

GUMMATOUS CERVICAL ADENITIS.

GUMMATA of lymphatic glands are amongst the rarest manifestations of syphilis and are not mentioned or are briefly dismissed in the text-books devoted to the disease. The cases recorded are mainly French and German and number about 100. Sir Jonathan Hutchinson, with his usual caution, wrote in his classical work on syphilis: "As to the occurrence in lymphatic glands of large gummata I have but very little evidence to offer, and that little is inconclusive. Cases have been recorded by Fournier and others of large tumours so diagnosed which have disappeared under rapidly specific treatment, but they are all open to fallacies. Undoubtedly it is advisable in all such cases to prescribe iodides or mercury with tonics, but the success of such measures does not prove syphilis." Other syphilographers have been content to rely on the therapeutic test. In the *Boston Medical and Surgical Journal* of July 13th, Dr. W. P. Coues has published an important paper on gummatous cervical adenitis in which he reviews the literature and reports a case. At the present day doubt has been expressed by pathologists and clinicians as to whether the swellings in the neck so diagnosed are situated in lymphatic glands, but not as to their gummatous nature. The following case is the fifth recorded by Dr. Coues, the others being reported in the Boston *Journal* of Nov. 8th, 1915.

A man, aged 33, was seen at the Massachusetts General Hospital on Feb. 1st, 1922. There was a history of a penile lesion five years previously, but not of any secondary symptoms. Three months before coming to hospital he noticed a swelling under the jaw and then on the right side of the neck behind the ear. The swellings gradually enlarged and the right one became somewhat reddened. He was well nourished, but the pupils were slightly oval and "stiff," reacting, however, to light and accommodation. The knee-jerks were present. In the left submaxillary region was a firm mass of the size of a lemon, having the appearance of a considerably enlarged lymphatic gland. It was not fixed or tender. On the right side was a mass posterior to the upper third of the sterno-mastoid, reddened, but not tender or adherent. The Wassermann reaction was strongly positive. A blood smear was negative for leukæmia. Under treatment for gummatous adenitis considerable improvement took place in a week.

In Dr. Coues's cases the patients have usually been well-nourished, the masses have been painless, and signs of tuberculosis have been absent. A case recorded by Wile[1] is of considerable interest as the treponema was found. A youth of 19, while taking large doses of mercury for syphilis contracted five months previously, showed rapid swelling of the posterior left cervical glands. Puncture of one gland yielded sero-purulent fluid in which by dark-field illumination, a few typical spirochætes were seen. Subsequently some of the glands fluctuated and discharged through pin-point openings, which rapidly enlarged until typical punched-out gummatous ulcers formed. Rapid healing took place under salvarsan.

TABES AND OPTIC ATROPHY.

IN an important paper contributed to the July issue of the *British Journal of Ophthalmology* Mr. Leslie Paton remarks that in tabes we have one of the most common diseases of the central nervous system, and yet one in which the pathological process at work is the subject of the most diverse views. He discusses some of these views, and refers especially to Richter's recent discovery of spirochætes in a few cases of tabes in the granulation tissue in the sub-arachnoid recess which surrounds the radicular nerve. The old hypothesis of a metaluetic toxin, the result of tissue degenerations produced by earlier syphilitic manifestations, must, he considers, in the light of all the recent work, be finally abandoned. "The toxin was always a purely hypothetical substance evoked to explain degenerations taking place where no active organisms could be found. In the light of the work of Noguchi, Levaditi, Mott, Head, Fearnsides, McIntosh, and Fildes, it must now be allowed that all the manifestations of syphilis are due to the local production of toxins in the presence of the spirochæte, but that the reaction between the spirochætes and the tissue varies at different periods and in different tissues, either because of a diminution in the number and virulence of the spirochætes or because of differences in the resisting power of the tissues to the action of the toxin." Mr. Paton leans to the view that the nerve degenerations and the connective-tissue degenerations are coördinate results due to the presence of spirochætes in both tissues. With regard to the fleeting diplopias of early tabes, it is suggested, on the authority of Sherrington, that here, as in the other tabetic lesions, the primary disturbance may be in afferent fibres; that it may be due to disturbances in the afferent proprioceptive impulses from the oculo-motor muscles and muscles of the head and neck. This would account for the fleeting character of these diplopias. They have nothing in common with the ocular paralyses of late tabes. These probably depend not on a nuclear degeneration, but on an affection of the nerve-stem. Mr. Paton attaches importance to the observation of Behr, that one of the functional disturbances of early tabes is loss of dark adaptation, a symptom which may precede any evidence of atrophic change in the fundus, and he distinguishes two types of defect—one in which there is an early loss of colour fields and early loss of visual acuity with relatively full fields for white, the other in which the area of defective visual fields is sharply delimited from unaffected areas which show full normal vision with good central acuity. Many of these points may be new to those who derive their knowledge from standard text-books.

PUBLIC MENTAL HOSPITALS.

THE committee appointed in December last to investigate the charges made by Dr. Montagu Lomax in his book[2] "The Experiences of an Asylum Doctor," have drawn up a unanimous report which was presented to Parliament this week. The report is based on the evidence of 38 witnesses, together with a large amount of information derived from memoranda, from a questionnaire sent to medical superintendents

[1] Archiv f. Dermat. und Syphilis, 1912, p. 1193.

[2] A cheap edition of this book, published for the National Council for Lunacy Reform (George Allen & Unwin, 3*s.* 6*d.*), is now available.

of 21 mental hospitals in all parts of the country, and from the committee's own observations as a result of visits paid to many institutions. Before taking any evidence, the committee paid a surprise visit to Prestwich Asylum (on which Dr. Lomax based his experience) and spent two days at the institution. In the course of the inquiry they familiarised themselves with the conditions in which over 11,000 patients are living—i.e., nearly 10 per cent. of the total number under care. In all institutions visited the superintendents gave the committee the fullest facilities for investigation; in only two out of seven instances was the visit announced beforehand. Special steps were taken to converse at length with members of the staff and with many patients at these hospitals. As a result of their investigation the committee find that Dr. Lomax's book draws attention to some aspects of asylum administration which have long been recognised as admitting of improvement, that many statements in the book are based only on hearsay evidence or on none at all, and that many deductions are unjustified by facts; that there are therein many gross exaggerations, and a number of statements demonstrably untrue; that although Dr. Lomax attacks what he calls the "system," the committee do not find that any "system" producing uniformity of treatment exists; and that the author does not make adequate allowance for the quite abnormal conditions created by the war.

The committee examined Dr. Lomax's charges in order to discover (*a*) how far the author faithfully represented conditions at Prestwich, and (*b*) how far the criticisms were true of mental hospitals generally. Their more important findings may thus be summarised: The suggestion that patients are herded together without classification is grossly exaggerated in the case of Prestwich, and untrue of mental hospitals generally; but the arrangements found for reception of new patients in Prestwich were inadequate. There is no ground for the allegation that systematic ill-treatment prevails in our mental hospitals; the public are almost entirely ignorant of the exacting nature of the work done by nurses and of the dangerous character of many of the patients under care. The charge of indiscriminate use of sedatives and purgatives admitted of very exact tests; the committee obtained particulars from the prescription books of mental hospitals and from the auditors of the Ministry of Health, and compiled statistics which entirely disprove this charge. With regard to the suggestions that patients are unnecessarily detained in institutions, there is no evidence that persons who have recovered sanity are so detained; the committee consider that if arrangements for after-care were improved a certain number of patients not really in need of institutional care could be discharged. There is nothing to show that the facilities for surgical treatment are inadequate, or that every means is not used to restore the insane to health and sanity. With regard to the stationary recovery rate, the evidence has shown that the recovery rate in mental hospitals compares favourably with that in general hospitals. The committee make recommendations briefly as follows:—

That for the future the size of mental hospitals should so far as possible be limited to accommodation for 1000 patients; that in classification of patients account should be taken of their home conditions; that the superintendent of a mental hospital should be a medical man, having undivided control of the institution, and that a small Advisory Board, preferably associated with the Board of Control, should be available for consultation by visiting committees when making these appointments; that the number of assistant medical officers should be increased, and that facilities for study-leave should be given; that the Departmental Committee on the Nursing Service should consider whether some distinction cannot be made between the two duties of mental nurses—namely, nursing proper and social duties—and that the present rigid system involving short shifts of duty should be discontinued. Other recommendations relate to greater variety of diet, to the appointment of a special occupations officer at each institution, to the better organisation of after-care work, and to the possibilities of coördination of research by concentration in a few fully-equipped institutions; it is also suggested that visiting committees should be strengthened by the coöption of persons with special qualifications and time to devote to the work, and that they should consider the authorisation of some small unofficial committee to visit the mental hospitals from time to time. The committee are of the opinion that the Board of Control need additional assistance to carry out their work.

MEDICINE AND CIVILISATION IN JAPAN.

Dr. Jokichi Takamine, of whom we print an obituary notice in another column, was one of that group of medically educated Japanese which took so large a part in the scientific awakening of the Eastern island empire. Modern medicine owes its origin in Japan to Dutch doctors who settled there in the 50's, and at a time when anti-foreign feeling was still running high, private medical institutions with Western equipment were springing up all over the country. Hence when the demand suddenly came for young men with a knowledge of foreign speech and culture it was medicine that was able to supply the need. At one time nearly one-half of cabinet ministers were medical men or had been educated in medicine, among them Marquis Ito and Count Okuma. Takamine once stated in public that it was medicine that brought modern civilisation successfully to Japan, and not either Christianity or the point of the Armstrong gun.

THE CURRICULUM OF THE WELSH NATIONAL MEDICAL SCHOOL.

ONE of the difficulties facing the Faculty of Medicine of the Welsh National Medical School is in process of being overcome. A few weeks ago it was made public that the University of London as well as the Conjoint Examining Board had notified the school of their inability to recognise the King Edward VII. Hospital in Cardiff as providing the facilities prescribed in the case of the hospital of a medical school. Since then a deputation from the University of Wales has been able to satisfy the committee of management of the Examining Board in regard to the general provision made for teaching, and the Royal Colleges have endorsed their committee's recommendation that the Welsh National School of Medicine should be recognised provisionally for the complete curriculum for one year from Oct. 1st, 1922. Recognition will be made permanent provided certain conditions are fulfilled not later than Oct. 1st, 1923. The more important of these are that the total number of beds, exclusive of cots, available for the teaching of medicine in King Edward VII. Hospital shall be not less than 80, of which not less than 30 shall be allotted to the professor of the medical unit; that the physicians and surgeons of the hospital, along with their assistants and the officers in charge of special departments, shall be recognised as teachers of the University of Wales; and that clinical clerkships and dresserships are provided for all students, whether in professorial units or not.

INDEX TO "THE LANCET," VOL. I., 1922.

THE Index and Title-page to Vol. I., 1922, which was completed with the issue of June 24th, is now ready. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2.

OPHTHALMIA NEONATORUM: CONFERENCE ON IN-PATIENT TREATMENT IN LONDON.

IN 1918 the Metropolitan Asylums Board, at the request of the Ministry of Health, established an institution—St. Margaret's Hospital, Leighton-road, Kentish Town—for the treatment of cases of ophthalmia neonatorum. This hospital, to which certain open-air (balcony) wards were subsequently added, now contains accommodation for 60 cases, including beds for mothers who are encouraged to accompany their babies, and treatment is available for those mothers who are willing to receive it. The accommodation provided at the hospital has, however, never been fully utilised, except for occasional short periods, and the Board have also experienced a continuous difficulty in securing the admission of babies in the earliest stage of the disease. From time to time various steps have been taken with a view to the more extended use of the hospital, but these have not met with such success as had been hoped for. The Board therefore recently convened a conference to discuss measures to secure that greater advantage should be taken of the facilities provided by the hospital. This conference took place at the office of the Board on July 19th, and was attended by the following:—

Representation at the Conference.

1. Representatives of the Board.

Mr. Walter Eickhoff, J.P., Chairman of the Board; Mr. C. Botterill, Chairman of the Infectious Hospitals Committee; Dr. Lauriston Shaw, Vice-Chairman of the Infectious Hospitals Committee; Miss M. E. Broadbent, Chairman of the St. Margaret's Hospital subcommittee; along with Dr. F. F. Caiger, Chief Medical Officer, Infectious Hospitals Service; Mr. M. S. Mayou, F.R.C.S., Ophthalmic Surgeon, and Dr. C. Price, Medical Officer, St. Margaret's Hospital.

2. Representatives of other authorities.

Ministry of Health: Mr. H. O. Stutchbury, Assistant Secretary, and Dr. Janet Campbell, Senior Medical Officer.

London County Council: Dr. Elizabeth Macrory.

Section of Ophthalmology, Royal Society of Medicine: Sir John Parsons, F.R.C.S., and Mr. J. B. Lawford, F.R.C.S.

Metropolitan Branch, Society of Medical Officers of Health: Dr. T. Shadick Higgins, M.O.H., St. Pancras, and Dr. C. Porter, M.O.H., St. Marylebone (hon. secretary).

Local Medical and Panel Committee for London: Dr. W. Coode Adams (Hampstead) and Dr. J. H. Traquair (Barnsbury).

Central Midwives Board: Dr. J. S. Fairbairn and Mr. H. G. Westley (secretary).

Midwives Institute: Miss Rosalind Paget and Miss Olive Haydon.

Present Position.

The proceedings were opened by the chairman of the Board, who presided, and briefly explained the position.

Mr. Mayou said that roughly one-third of the cases of ophthalmia neonatorum notified in London were admitted to the hospital, the figures being:—

	1919.	1920.	1921.	1922.*
Number notified	.. 870	.. 1186	.. 1076	.. 436
,, admitted	.. 281	.. 252	.. 213	.. 115

* To June 17th.

On an average, cases were received on the ninth day of the disease, but in other large towns it was about the fifth day. Instances occurred in which cases were not sent to St. Margaret's Hospital until corneal ulceration had developed. The eyes could be saved by appropriate treatment if the cases were received sufficiently early. St. Margaret's Hospital had got the name of a hospital for venereal diseases, and objection had been taken to it by some on that account, but every effort was made at the hospital to avoid any difficulty on this score.

Discussion.

General discussion then ensued. The work done at St. Margaret's Hospital was referred to in very appreciative terms and the opinion was expressed that some time must necessarily elapse before the existence of such an institution became generally known in London. It was considered that the percentage of cases notified who were admitted to the hospital was not unsatisfactory, as a large proportion of cases did not need hospital treatment. Emphasis was, however, laid on the desirability of the more prompt notification of cases. It was also stated that many medical students were not adequately instructed in ophthalmology. The objection to the hospital on the ground of its association with the treatment of venereal disease was felt to be one which was very difficult to move. Further, home duties prevented many mothers from entering the hospital with their infants.

Reference was made from various points of view to the dual control of midwives, who are required to notify the case to the borough medical officer of health, where this has not been done by a medical practitioner, and also to inform their local supervising authority, the London County Council, under the regulations, of any emergency (such as the occurrence of ophthalmia neonatorum) in which they had called in medical assistance.

It was urged that an institution such as St. Margaret's Hospital was valuable also as affording facilities for the training of midwives, who might, moreover, obtain further experience there after their training as to the best methods of treating ophthalmia neonatorum. The Board were advised not to seek to extend the method of treating cases of the disease in an institution such as St. Margaret's Hospital until the Departmental Committee on Blindness had submitted their report, as it might be found that there was a better way of dealing with these cases.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Fourth International Congress for the Protection of Motherhood and Infancy.

THE third International Congress for the Protection of Motherhood and Infancy was held at Berlin in 1911; the fourth took place in Paris recently, and was a great success, 30 nations being represented. The necessity of encouraging pregnant women to go for consultation to the out-patient clinic of a maternity hospital during the last months of pregnancy was much insisted upon as well as the need of recording the peculiarities of each case in a special "maternity booklet" to be kept by the mother for reference in other pregnancies. Confinement at home was discussed, and the necessity of pecuniary allowances for poor families was regarded as an absolute necessity. Mr. Armand Delille suggested that the children of tuberculous parents should be taken away and sent to the country under the care of a healthy family. It was recommended that women depending on charitable institutions during and immediately after their confinement should be compelled to bring their offspring to special consultations for infants, and for periodical medical examination. The efficiency of creches and district nurses was also considered. The fifth congress will be held at Madrid in 1925.

Cocaine Traffic.

At a recent meeting of the Académie de Médecine Mr. Courtois Suffit and Mr. René Giroux pointed out that whereas in 1916 there were 53 prosecutions for the illegal sale of cocaine, in 1921 there were 212 cases, these figures showing a marked increase in the cocaine traffic. They think that the Act of Parliament of July, 1916, dealing with the above-mentioned poison should be made stricter, that more searching inspection at the custom houses should be undertaken, and police raids should be organised on suspected establishments. The speakers urged the creation of an international commission to inquire into the matter. In the course of the discussion Mr. V. Balthazard remarked that all the cocaine which had been confiscated in Paris lately had been imported from Germany.

Death of Mr. J. Bertillon.

Mr. J. Bertillon, president of the National Association for the Study of the Means of Increasing the Population, has died recently; he has been the pioneer of this institution, which has played an important part in the welfare of the country. His death occurs at a time when the most prominent authorities in governmental administration in France are concentrating their efforts towards a study of the ways of increasing birth-rate and reducing death-rate in this country. Having in view the former need, the association has started lately an active campaign against the inefficiency of the Act dealing with criminal abortion.

A Protest by Medical Practitioners.

The Administration of the Assistance Publique, which represents the general committee of management for nearly all Paris hospitals, may grant to anybody, irrespectively of their financial status, the right to consult visiting physicians and surgeons at the hospital clinics on the payment of the sum of 4 francs. The committee of the Syndicat des Médecins de la Seine have recently protested against this practice since, owing to the increase of living expenses, they cannot adopt fees which would allow them to compete with the cheap hospital consultations; they express the wish that only indigent people should be allowed to consult as out-patients the physicians on the staffs of various hospitals.

The Pasteur Centenary.

Pasteur was born at Dôle-du-Jura, in the county of Franche-Comté, on Dec. 27th, 1822; it has been decided that the celebration of his centenary will take place officially at Strasbourg as well as in Paris, and that the State will participate in the expense of the celebrations.

Sixteenth French Congress of Medicine.

The Paris County Council has just decided to grant a subsidy of 20,000 francs for the benefit of the Sixteenth French Congress of Medicine which is being organised by the Association des Médecins de Langue Française. This congress will take place in Paris next October.

Legacy to the Académie de Médecine.

The late Prince of Monaco, who was an honorary fellow of the Académie de Médecine, has left in his will a sum of 1,000,000 francs for the benefit of the Academy.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Increase of Confinements in the Gynæcological Clinics.

IN a paper written in support of the proposed extension of the existing gynæcological clinics in Vienna, Prof. Peham gives some interesting data relating to the work done in the maternity departments of these institutions. Before the political upheaval the total of patients confined at the clinics included over 66 per cent. unmarried women; the proportion to-day is almost exactly reversed, two-thirds of the patients now being married. General practitioners and midwives are complaining of the constant decrease of maternity work in private practice, as numerous married women prefer to be delivered under favourable hygienic conditions in the public hospitals, in spite of the inconvenience attached to this procedure and the prejudices against it. This preference is largely due to the housing difficulty; many newly married persons live with the parents of one or other of the parties concerned, and the resultant overcrowding renders confinement very inconvenient. A constant well-marked rise in the number of children born in the clinics is therefore noted. In 1911, on an average, 10 children were delivered daily in these institutions; in 1916 the figure went down to 7, in 1920 it was again 10, in 1921 it reached 11, and in 1922 over 12 births are registered daily. In 1922 over 10 per cent. more patients were admitted for confinement than in 1911; if the figures for 1916 and 1922 are compared, an increase of 57 per cent. is noted. The increase is due chiefly to applications from women of the middle class. The labouring classes are not now so prolific as in former times; they adopt the "one or two children" system, and nearly always go to hospital now, as before, for their confinement. The private clinics are very expensive, and private practitioners and midwives charge fees which have become too high for the middle classes—teachers, public officials, small shopkeepers, clerks, &c. Under the hygienic conditions of the clinics puerperal complications are practically unknown, and the staffs of the clinics are quite willing to provide for an increase of patients. Funds for this purpose are being collected; it is suggested that nurses' quarters could be built on the flat roofs of the clinics, releasing the present nurses' rooms for use as maternity wards. Another 100 beds at least might thus be added to each of the two existing clinics. At present a large number of applicants are refused admittance because of the lack of beds; the rules of the clinics require thorough disinfection and airing of each bed and room vacated by a puerperal woman, which limits the speed of admission. A sufficient number of nurses must always be at hand to meet any emergency, and the nursing staff cannot be housed outside the clinic. Prof. Peham strongly emphasises the necessity for retaining the high standard of efficiency in the Viennese maternity institutions, and points out the importance of social hygiene in the restoration of national welfare.

Health Statistics for June.

The Board of Health reports that owing to the extremely mild weather the health conditions in Vienna were very favourable during June. Only 8803 cases, compared with 11,360 in the previous month, and 9044 in June, 1921, required help from the health officers. Only 514 cases of infectious diseases were reported, and the morbidity amongst school-children was also very low. The deaths numbered 2239 (compared with 2574 in May and 2626 in June, 1921), of which figure 518 were due to tuberculosis, whilst the numbers of cases of arterio-sclerosis, cancer, cerebral hæmorrhage, senile marasmus, and diseases of the circulatory system were markedly below all previous records.

Influx of American Doctors.

During the past two months a considerable number of doctors from the United States have come over here to do post-graduate work in different clinics and out-patient departments. The facilities afforded them are admirably organised; the American Medical Association of Vienna secured the services of the most eminent professors and lecturers and made the advantages of the Viennese courses widely known to the profession throughout the United States. The American medical men came over in professional groups—i.e., oto-rhino-laryngologists, ophthalmologists, &c. The average fee is $1 per lecture. Pre-war conditions as regards English medical classes in Vienna are thus re-established.

Social Education for Medical Students and Higher Schools.

An increasing amount of work along the lines of maternity and child welfare, examination of pensioners and calculation of degrees of war disablement, control of hygienic conditions in factories, &c., will be required in future from the ordinary physician. Those now engaged upon this work have themselves had to build up the methods employed, and the necessity for adequate instruction of students in these subjects is obvious. Medical students and also officials engaged in administrative work in all these connexions are now to receive definite instruction; it is intended to institute annual courses for those already working under the Austrian Insurance Act, whilst in future there will be school examinations for those intending to specialise in these directions. An inquiry into the education of the public health official and social worker is to be held in the autumn, with a view to the drawing up of legislative measures to safeguard the standard of public health work.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Protection of Children in Bombay.

CONSIDERABLE progress has been made by the Society for the Protection of Children in Western India, which has consistently urged upon the Government the need for strengthening legislation for the protection of children, and a Bill has been prepared which makes further provision for the custody and protection of children and young persons and for the custody, trial, and punishment of youthful offenders.

Better Housing for Labourers.

A leading Bombay paper states that the rapid extension of educational facilities will in all probability heighten rather than decrease labour unrest; it therefore urges that no time must be lost in redeeming the housing scandal of Bombay. The terrible congestion found in the working-class districts is a direct cause of the present widespread discontent. A man has no inducement to work when a large portion of his wages is swallowed up in paying rent for a miserable room which he is obliged to share with many others. He has no comfort to look forward to when he leaves his work; his spare time is spent largely in the streets or the liquor shop; he rapidly becomes apathetic, makes no attempt to become more efficient, and eagerly snatches at any chance of a holiday.

Reorganisation of the Sanitary Department in Madras.

During the past year, as indicated in previous notes, the Public Health Department of the Presidency has displayed considerable activity, and in spite of financial stringency a good deal of progress has been made possible. The experimental scheme for decentralising public health work by the constitution of district health committees in five districts has now come into force, and five health officers are at work in the districts of Vizagapatam, Kistna, Kurnool, Tanjore, and Trichinopoly. Not only have these men been placed in charge of the district vaccination staffs, but a number of trained sanitary inspectors have been posted to each district to assist them in general health work. The introduction of this new scheme has necessitated a reorganisation of the Sanitary Department, and a Government Order has recently been issued showing the lines on which future development is to take place. No orders have as yet been received regarding the number of posts which will be reserved for officers of the I.M.S., but this question will probably solve itself automatically. At present the only officer of the I.M.S. in the department is the Director of Public Health, and under conditions such as now exist it is doubtful if additional I.M.S. officers will be forthcoming. It is not suggested that properly qualified Indian medical men, able to carry out the work of the department, are not available, for all of the present five assistant directors are Indians. It is probable, also, that later it will not be feasible to insist on the possession by applicants for these posts of a British Diploma of Public Health, which is now required before confirmation, as the syllabus for the Madras University degree of Bachelor of Sanitary Science is up to date, and the standard required from candidates is not less than that demanded by British universities and colleges which have D.P.H. courses. The present intention probably is that all Indian officers of the department should be acquainted with British systems and methods before they receive confirmation. In view of the present low standard of sanitation in India, this is certainly wholly to the advantage of such officers.

Employment of Health Officers in Bengal.

The employment of health officers by district boards and municipalities is a policy of such obvious benefit to the public welfare that it is surprising to find these officers regarded in some places as "expensive luxuries." This impression, however, exists to such an extent that the publicity officer of Bengal has considered it worth while to issue a statement explaining the value of the services rendered by district health officers.

Rural Sanitation.

It is regrettable to find that in the rural areas of the United Provinces a pronounced indifference to sanitation prevails. A Government resolution dealing with the work in the United Provinces draws attention to the fact, and quotes the Commissioner of Allahabad's remark that "if official pressure were removed sanitary measures would disappear at once, not only in villages but in most small towns." The Commissioner further observes that it is to be feared that *zamindars* (landowners) are less mindful of their duties in regard to sanitation than they were, and that "the deterioration in the relations between them and their tenants is not likely to mend matters."

Rockefeller Foundation Scholarships.

The Rockefeller Foundation has recently offered, through the Government of India, five scholarships to Indian officers of the medical and public health departments. The final selection of officers is to be made by the Government of India, and those awarded the scholarships will be required to study in America or Great Britain. The subjects of study will be confined to public health questions. The scholarships are to be of the value of $100 per mensem, plus travelling expenses to and from India, and it is to be hoped that Indians of the proper class will seize this valuable opportunity for study and research in a subject of such vital importance to the peoples of this country.

Midwifery Training.

With a view to improving the education in midwifery of Indian medical graduates, Lucknow students are already attending the well-known Madras maternity hospital for obstetric training, while Bombay has been able to arrange for its medical students to be attached to the municipal hospital in their own city.

Medical School for Women.

The Madras Legislative Council voted a sum of Rs.15,000 in March last for meeting the ordinary expenditure on the medical school for women, which was to be started in the current year. The Government have found it very difficult to secure a suitable building for a school, nor is it possible to adapt a private residential building and equip it so as to make it suitable for a medical school before July of this year, when the school term commences. The Government have therefore decided to postpone the opening of the school till July, 1923. They are making arrangements for the erection of the necessary buildings during the current year.

APPOINTMENT OF SANITARY INSPECTORS AT ILFORD. The Ilford Urban District Council has recently put the Public Health (Officers) Act, 1922, into operation, and has appointed, with the approval of the Minister of Health, the three assistant inspectors—Messrs. T. V. Haigh, H. C. Monkcom, C. W. Fisher—as sanitary inspectors, Mr. F. W. King being designated senior sanitary inspector. Ilford claims to be the first of the urban districts to put into force the provisions of this important Act, by which for the first time more than one sanitary inspector can be legally appointed by an urban district.

HORSHAM HOSPITAL.—In accordance with the decision arrived at by the governors of Horsham Hospital at the annual meeting in March last, a start has been made with the erection of a new and larger institution at an estimated cost of some £13,000. On July 20th Earl Winterton laid the foundation-stone, upon which is an inscription recording the erection of the hospital by voluntary contribution in memory of those who fell in the war. The small hospital was built only for 12 beds, but during 1921 there were frequently 15 or 16 patients at a time, the total number during the year being 279, or 51 more than in 1920.

Public Health Services.

PENALTIES AND THE INSURANCE COMMITTEE.

Two influential insurance committees (Surrey and Birmingham) have protested recently to the Ministry of Health against the practice of inflicting penalties on insurance practitioners for not furnishing reports to the regional medical officers. The practitioner's agreement is with the insurance committee, and the committees being reponsible for the administration of medical benefit in their area contend, with some force, that in the matter of discipline or breach of agreement the committee ought to have the practitioner before it and the facts gone into first as in ordinary cases of complaint. This would be a very cumbrous procedure, and it is obvious that the Ministry only decides to inflict a fine after a careful investigation in which opportunity is given to the practitioner to offer explanation and submit his defence. It is true that the insurance committee inflicts the penalty without knowing all the circumstances of the case, but from the administrative point of view the Ministry must reserve the right to investigate cases ab initio. There are some irregularities with which it is essential to deal speedily.

TECHNICAL NEGLIGENCE OF A PANEL DOCTOR.

Our attention has been called to the report of an appeal to the Minister of Health by a panel doctor against the decision of his insurance committee on a charge of negligence and breach of agreement with the committee. The report is brief, but the facts appear to be as follows:—

An insured person on Dr. A.'s list was taken ill at a friend's house, a mile and a half away from the doctor's residence. The friend telephoned at mid-day, when Dr. A. was out on his rounds and his secretary was away at lunch. Dr. A.'s wife took the message, ascertained that it was not urgent, and replied that Dr. A. would be given the message when he came in. The entry made in the book kept for recording calls showed that the name of the patient was spelt incorrectly as commencing with B. instead of P., and the address of her friend was some distance from her own home. On reference to the records the secretary naturally could not identify the name, and Dr. A. thereupon decided to wait for the patient to send again. No further inquiries were received and four days later the insured person herself went to the house of Dr. B. and was treated by him. Dr. B. furnishes a bill for £2 2*s*. which the insurance committee finds to be "expenses legitimately and reasonably incurred owing to the panel doctor's failure to attend." The only point made against Dr. A. by the committee is that by Clause 7 (2) of the terms of service he was bound to go to the address given, whether the insured person was on his list or not, because she applied for treatment "as an insured person." According to the strict letter of the rule this may be good in law, but we find it unreasonable to expect a busy doctor to go off to a distant case in order to ascertain whether it is entitled or not to his services.

The Ministry dismissed Dr. A.'s appeal and directed that he should pay costs to an amount not exceeding £2 2*s*. On the facts as stated we confess to some surprise that the finding of the medical service subcommittee was upheld by the Ministry. In the first place, it was not unreasonable for Dr. A. to suppose that the patient's friend would ring up again at a time when he might be expected to be at home. It is quite usual for patients to send a second time in case of delay due to a misunderstanding, and in this case the friend was able to use the telephone. Secondly, it seems to us unjust to ask the insurance doctor to pay the whole of the expenses incurred by the patient in going to a private doctor. It came out in evidence that the patient was able to go herself to Dr. B.'s house for treatment. This being so, it was clearly possible for her to have called on Dr. A. during surgery hours. There was never any question of refusal to give treatment and the only visit that could be considered from the point of view of negligence was the first one. The solicitor of the Medical Defence Union rightly protested that the finding of the committee involved a question of principle. If insurance doctors are to be the victims of unreasonable insured persons who are allowed to take advantage of a simple misunderstanding of a telephone call to run up bills at their expense then the sooner they realise the risks they run the better. In this case Dr. A. admittedly had excellent arrangements for conducting his insurance practice.

IMPROPER CERTIFICATION.

A case recently came before the Ministry of Health in which two approved societies complained that medical certificates had been issued by a dispenser in the employ of a practitioner and signed by her in the name of the practitioner. In a communication to the practitioner the Minister states:—

> "To permit important documents containing statements of fact, the value of which rests on the assumption that they are personally issued by a duly qualified medical practitioner, to be issued in your name by an unqualified person, trangresses not only your conditions of service but also, as the Minister believes, the recognised principles of professional conduct."

The practitioner was fined £40 and reported to the General Medical Council. We hope that this case will be brought to the notice of every insurance practitioner. Practitioners are apt to undervalue the "important documents containing statements of fact" which they have to give in the form of certificates to insured persons. They have little or no training in this important part of their function as insurance doctors. Factory surgeons are described as "certifying" surgeons: panel doctors are certifying surgeons in a larger sense. The rules of certification are laid down clearly and definitely for practitioners to see the range and extent of their duties, but it seems that sufficient importance is not yet attached to this part of the terms of service. Certificates are documents upon which serious decisions are made; if they cannot be trusted, the status and influence of the practitioner is lowered and his profession is injured in the eyes of the public. The General Medical Council have taken a firm position with regard to careless certification, and a re-issue of the memorandum on the duty of giving certificates would be timely.

SCHOOL MEDICAL SERVICE.

EASTBOURNE: REPORT FOR 1921.

The total number of children inspected was 1699, including 43 special cases. 2787 re-examinations were made. Seventeen parents refused examination. The inspections revealed defects in over 50 per cent. of the children, and 79 cases of malnutrition as compared with 52 the previous year. The refusal of the Board of Education to sanction the extension of the open-air school by the addition of a shelter for 25 extra children deals hardly with such cases. As Dr. W. G. Willoughby says, the extension could be done so inexpensively that it would be a paying as well as a humane investment. Not one case of pulmonary tuberculosis or ringworm was found. All the surgical throat and nose work has now been transferred from the clinic to the Ear, Nose, and Throat Hospital, and is carried out by the medical staff there. The children are all detained in hospital for at least one night after operation. This practice is desirable, and it is to be hoped that it will rapidly become universal. Remedial work is going forward, and orthopædic clinics will be opened directly the financial stringency is relaxed. Eastbourne affords an admirable example of the effective administration of medical treatment by a number of part-time officers

BRITISH MEDICAL ASSOCIATION:

THE GLASGOW MEETING.

(*Continued from p. 244.*)

ANNUAL GENERAL MEETING.

THE annual general meeting of the Association was held on Tuesday, July 25th, in the Bute Hall, and, according to custom, in two sessions. The first part of the meeting was held in the afternoon, during an interval in the meeting of Representatives, and at this session Prof. David Drummond, President, 1921–22, inducted into the Presidential chair Sir William Macewen, President-elect, 1922–23, and invested him with the badge of office. Following the confirmation of the minutes of the last general meeting, and the reappointment of Messrs. Price, Waterhouse and Co. as auditors, came the formal announcement that Mr. Charles P. Childe, senior surgeon at the Royal Portsmouth Hospital, had been elected by the Representatives President of the Association for the year 1923–24, the annual meeting taking place next year at Portsmouth. The adjournment of this part of the meeting concluded with a vote of hearty thanks to Prof. Drummond, the retiring President.

The adjourned general meeting reassembled in the Bute Hall at 8 P.M., when the foreign guests and overseas delegates were introduced. Three presentations then took place:—

The Association's gold medal of merit with an illuminated address (awarded in 1915) was presented to Colonel Arthur Martin Leake, R.A.M.C., V.C., F.R.C.S.—

"the first of His Majesty's subjects to be awarded a bar to the Victoria Cross for his most conspicuous bravery and devotion to duty throughout the war, especially during the period Oct. 29th to Nov. 8th, 1914, near Zonnebeke, in rescuing, whilst exposed to constant fire, a large number of wounded men who were lying close to the enemy's trenches."

The Association's gold medal of merit with an illuminated address was presented to the Right Honourable Sir T. Clifford Allbutt, K.C.B., M.D., F.R.S.—

"for his long and distinguished services to the profession and the Association, and in commemoration of his five years' Presidency of the Association at the time of the Great War, 1916–21."

The Stewart prize, consisting of an illuminated certificate and a cheque for £30, was presented to Dr. John C. McVail, LL.D. Glasg., M.D., F.R.F.P.S., D.P.H.—

"in recognition of his distinguished services to the community in the advancement of Preventive Medicine."

The President then delivered the Presidential Address, which was published substantially in THE LANCET last week.

A vote of thanks to the President for his address was moved by Dr. Wallace Henry, the chairman of Representatives, who pointed out the pre-eminent position in surgery which had been won by Sir William Macewen. The vote was seconded by Sir Frederick Mott, who, speaking as a neurologist, owned the great debt that was owed to the President as a pioneer of brain surgery.

The hall was crowded with an interested audience.

THE ANNUAL MEETING: EXHIBITIONS AND FUNCTIONS.

The General Committee in charge of the meeting are to be congratulated upon the orderly and hospitable manner in which the numerous visitors were welcomed, shepherded, and entertained, while Glasgow made an admirable centre for assembly with its spacious University buildings, numerous hotels, beautiful parks, and picturesque environment. A Reception Committee, Hotel and Lodgings Committee, and a General Entertainments Committee, and a series of Ladies' Committees worked in strenuous combination to render the meeting successful, with the result that every moment of the day had its occupations arranged.

During the first days of the meeting the Representatives were in conclave during the whole working day except Sunday. They dined together on the night of arrival, and on Saturday night, July 22nd, a Smoking Concert was given at the Grand Hotel. To many of the audience the language of some of the songs was unintelligible, but all could appreciate the dexterity of the conjurer. On Sunday morning, July 23rd, there was an official service in the Cathedral, and in the afternoon an enjoyable trip was made easy by the offices of Messrs. Yarrow. S.s. *Skirmisher* conveyed a large party down the Clyde and up Loch Long and Loch Goil, luncheon and dinner being provided aboard. On Monday, the Representative Body was fully occupied during the day, but a good musical entertainment had been organised for them in the evening at the Alhambra Music Hall.

On Tuesday, July 25th, Sir William Macewen officially opened the exhibition in the Kelvin Hall of surgical instruments, electrical appliances, books, drugs and foods, while on the same morning and also in the Kelvin Hall, there took place the official opening of the Public Health Exhibition, by Bailie J. H. Allan, Convener of the Health Committee of the Corporation of Glasgow. On the afternoon of Tuesday there was a short session of the Annual General Meeting before the Representative Meeting, which closed in time to allow the Representatives to attend an official religious service held in the afternoon at the Cathedral. The meeting adjourned until the evening, when it reassembled at the University, in the Bute Hall, to hear the Presidential Address.

On Wednesday, July 26th, the Scientific Sections commenced their sessions, while in the afternoon very many excursions had been arranged for them, among which may be mentioned visits to the Orphan Homes of Scotland (Quarrier's Homes), to the Glasgow Waterworks, Coats's Thread Mills, the Observatory, and the larger hospitals of the city. In the evening there was a reception by the Vice-Chancellor and Lady MacAlister in the Bute Hall of the University. Thursday, July 27th, was also a very full day, opening with the Temperance Breakfast before the sectional meetings. At noon, there was an honorary graduation ceremony, when the degree of LL.D. Glasgow was conferred upon Dr. Robert Alfred Bolam, Direct Representative for England on the General Medical Council, chairman of Council, British Medical Association; Dr. David Drummond, Vice-Chancellor and Professor of Medicine, University of Durham; Sir Archibald Edward Garrod, K.C.M.G., M.D., Regius Professor of Medicine, Oxford; Sir Humphry Davy Rolleston, K.C.B., M.D., President of the Royal College of Physicians, London; and Sir Dawson Williams, M.D., Editor of *British Medical Journal*.

In the afternoon, there was a competition at Killermont for the Ulster cup and gold medal, presented by the Glasgow Medical Golf Club, when the trophy was won by Dr. Macfarlane of Glasgow.

On Thursday afternoon a civic reception was given to the Association in the City Chambers, where, in the absence of the Lord Provost, the members were received by Bailie J. A. Stewart, acting Chief Magistrate. Bailie Stewart pointed out that the records of the City and University contained the names of some of the most eminent physicians and surgeons who had adorned humanity, and he made a special plea for the permanent maintenance of "the historic Lister Ward." Sir Humphry Rolleston and Sir Thomas Oliver offered the thanks of the members to the City of Glasgow for their reception. In the evening the annual dinner of the Association was held at St. Andrew's Hall and was followed by a reception and dance.

The dinner was attended by about 500 members and guests, and was presided over by Sir William Macewen. After the loyal toasts the President proposed the Imperial Forces, referring to the good work done by young men in the war. The toast was replied to by Sir Humphry Rolleston for the Navy and Sir William Leishman for the Army. The toast of the City of Glasgow was proposed by Prof. David Drummond and responded to by Bailie J. A. Stewart. Sir Frederick Mott then proposed the toast of the University of

Glasgow, pointing to such eminent alumni as Kelvin, Lister, William Hunter, and William Macewen, and coupled the toast with the name of the Principal and Vice-Chancellor, Sir Donald MacAlister, to whose wide learning he paid an eloquent tribute. Sir Donald MacAlister, in reply, recalled the names also of Adam Smith, James Watt, Joseph Black, Cullen, and Smellie, and said that during its 470 years of activity the University had sent out well-equipped graduates all over the world. He concluded by saying that it was good "for the natives of the Southern Peninsula of Great Britain" now and again to visit Scotland. Sir Robert Bruce proposed the health of the Association and drew an interesting parallel between the state of medical science now and the state in 1888 when the Association last met in Glasgow. Despite which interval, he added, the distinguished President showed no signs that 34 years had passed since he delivered at the last meeting in Glasgow a notable address on the developments of surgery. Dr. R. A. Bolam, President of the Council, in replying for the Association, paid an eloquent tribute to the zeal and energy of the permanent staff.

On Friday afternoon, numerous excursions took place, while conducted visits were paid by small parties to the Art Galleries, Museum, Cathedral, Coats's Observatory, Corporation sewage works, and various manufactories and hospitals. In the evening the "Popular Lecture" was delivered in the Lyric Theatre by Prof. Graham Kerr, who took as his subject the "Physician as Naturalist, Teacher, and Benefactor," while later members had a choice between a reception and dance given by the Royal Faculty of Physicians and Surgeons in the McLellan Galleries, and a second music-hall entertainment at the Alhambra.

Three whole-day excursions took place on Saturday, July 29th: one through the Kyles of Bute, one to Ayr and the "Land o' Burns," and one to Stirling and Bridge of Allan.

THE ANNUAL REPRESENTATIVE MEETING, MONDAY, JULY 24TH.

The Representatives met at 10 A.M., when, after the Medical Secretary had announced the result of the elections to the Council and to the Insurance Committee, the Treasurer, Dr. G. E. Haslip, proposed that the annual report of the Council under "Finance" be adopted. This was carried with the addition of an amendment—

That it be an instruction to the Council to consider the possibility and advisability of the Association expending more money in scientific work.

The Treasurer also moved and carried, after certain amendments, a recommendation of the Council that a reserve fund should be established for the extension of the work and premises of the Association, to receive augmentation at the discretion of the Council.

Salaries of Teachers.

The salaries of non-professorial medical teaching staffs were next discussed and the following recommendation of the Council was adopted by the Representatives:—

That the essentially whole-time non-professorial Medical Teaching Staff should be divided into three grades as defined below, and with the salaries as stated:—

Grade III.—Comprising those who are junior workers temporarily employed on probation; no person shall remain in Grade III. for more than two years. That the minimum salaries for Grade III. shall be as follows:—1st year, £300; 2nd year, £350.

Grade II.—Comprising Laboratory or Research Workers or Teachers, who are permanently and exclusively employed as such. That in accordance with Minute 65 of the A.R.M. 1920, the minimum commencing salary for Grade II. shall be £500 per annum; and this shall be subject to increments at regular fixed intervals.

Grade I.—Comprising those of Grade II. whose qualifications or duties justify a position of seniority in status and a higher remuneration. That the minimum salary for Grade I. shall be £750 per annum, subject to increments at regular fixed intervals. That after the probationary period (i.e., Grade III.) has been completed, dismissal should only be possible on grounds of neglect of duty, improper conduct, or incapacity.

Remuneration at Minor Ailment Clinics and for Medical Referees.

The Council then received authority from the Representatives to amend as to details the existing Public Medical Service schemes, and to modify their previous decision as to the minimum remuneration to be received by practitioners for service at minor ailment clinics. It was decided that—

For the treatment of minor ailments not less than £1 11*s.* 6*d.* per session of not more than two hours should be accepted, provided there is a limitation of the average number of new cases each session.

A brisk little debate followed upon the procedure to be adopted by medical men who were asked to examine and report upon candidates for small industrial insurances at their own homes. A resolution, introduced as an amendment to a motion for the restoration of the 50 per cent. rebate in the tax on professional motors, was carried in the following terms:—

That where Industrial Insurance Company agents require the medical referee to visit proposers for medical examination a mileage fee of 2*s.* 6*d.* per mile or part of a mile be paid in addition to the ordinary fee.

The debate showed that in the opinion of the Representatives it was the business of the agent to bring his candidate for a policy to the referee, and that a doctor might well refuse to visit the candidate and certainly should have his expenses recognised. Some speakers thought that a likely candidate for life insurance could always and did generally visit the referee, but the common example to the contrary, of the insurance of an elderly relative, was forgotten by them.

Midwives and Nurses.

The morning session was concluded by the discussion of three questions affecting midwives and nurses. First, the following motion was referred to the Council for consideration:—

That this meeting deprecates the present practice of the London County Council in bringing undue pressure to bear during the puerperium for the purpose of recovering fees from patients attended under the Midwives Emergency Act, as it is calculated to defeat the object in view.

This was passed and a rider was next carried:—

That this meeting is of opinion that the practice of the use by midwives of opium (as well as of pituitary extract) is fraught with considerable danger, and considers that a continued protest should be made against such use.

It was stated during the debate that the Midwives Board would not endorse the protest against the use by certified midwives of these poisons; and while some support in the room was forthcoming for permitting the use of opium to certified midwives, presumably alive to the conditions of normal labour, the condemnation of the use by them of pituitary extract was unanimous.

Thirdly it was resolved:—

That the Council take into early consideration the effect of a recent Rule passed by the General Nursing Council (England and Wales) which permits the secretary of a nurses' organisation to certify nurses applying for registration.

Debate on Hospital Report (Resumed).

In the afternoon session the debate on the Hospital Report was resumed. The proceedings commenced with an interesting discussion on the professional circumstances which should regulate the admission of private patients to nursing homes attached to hospitals. The main point was to arrive at what position the patients' regular medical attendant should occupy in such circumstances. The resolution took final shape thus:—

Where it is desirable that special accommodation in the nature of a nursing home should be provided in connexion with voluntary hospitals for the reception of private patients there should be provided as follows:—

(*a*) Private patients should be admitted to such special accommodation only on the recommendation of a private practitioner except in cases of emergency. In the latter circumstances the patients' own medical attendant should be informed.

(*b*) It shall be open to a private patient to select any registered medical practitioner as his attendant.

(*c*) The scale of charges for the private patient for maintenance shall be such as fully to cover every cost to the hospital.

(*d*) No fixed rate of payment for professional services rendered to such patients should be established; the fees so payable to remain, as at present, a matter of arrangement between patient, family physician, and consultant.

The resolution eventually carried with regard to the professional aspects of private in-patients in hospitals was as follows:—

Where private patients are admitted under special arrangements into the public wards of a voluntary hospital:—

(*a*) Private patients should be admitted to such wards only on the recommendation of a private practitioner except in cases of emergency.

(*b*) The scale of charges for the private patient for maintenance shall be such as fully to cover every cost to the hospital.

(*c*) No fixed rate of payment for professional services rendered to such patients should be established; the fees so payable to remain, as at present, a matter of arrangement between patient and the member of the staff of the hospital.

(*d*) The accounts of the hospitals should be kept so as to show the cost of this hospital benefit.

(*e*) The ordinary hospital routine of admission, transference, and discharge of patients should not be modified for these private patients, nor should any preferential treatment be given to them.

A definition of the out-patient department was then arrived at in the following words:—

The primary object of the out-patient department should be for consultation.

Only such treatment should be given as cannot consistently with the best interests of the patient be properly undertaken by a general practitioner of ordinary professional competence and skill.

Voluntary Hospitals Staff.

A long and important debate then ensued upon the composition of the medical staffs of voluntary hospitals, the circumstances dictating their make-up coming in for detailed inspection. The two things aimed at were to secure the election of candidates while still in youthful vigour, and provision for organised research. As a result the paragraphs of the Hospital Report dealing with these matters were carried, with certain amendments here included:—

Full opportunity should be given to private practitioners who possess the necessary qualifications and experience to participate in the work of voluntary hospitals, and for that purpose:—

(*a*) The age limit or tenure of office of members of the honorary medical staffs of voluntary hospitals should, where necessary, be so modified as to allow more and younger practitioners to obtain responsible hospital experience.

(*b*) Greatly increased facilities should be provided for the appointment of clinical and chief clinical assistants to the various departments of the larger hospitals.

(*c*) When the number of patients of voluntary hospitals increases the medical staff of all grades should be increased.

(*d*) In considering the eligibility of a practitioner for one of these appointments, the points which would afford indications to which due regard should be given are one or more of the following: (1) Special academic or post-graduate study, if combined with some evidence of actual practice of the specialty; (2) tenure of hospital and other appointments affording special opportunities for acquiring experience; and (3) local professional recognition of competence in a consultative or expert capacity.

Disposal of a Staff Fund.

The following resolutions were then put up to hospital staffs for their consideration:—

The honorary medical staffs may find the following suggestions valuable in connexion with the disposal of the moneys in the special fund, and accordingly the Association suggests to the hospital staffs concerned that one or more of the following methods of distribution of any moneys in the special fund may be found suitable:—

(*a*) To the members of the honorary medical staffs for their own personal disposal;

(*b*) For the assistance of members of the medical staff in connexion with research work;

(*c*) For the purchase of instruments, books, &c., for the use of the medical staff, or for lending to other members of the profession;

(*d*) For the initiation or development of post-graduate teaching in the institution;

(*e*) The institution of a local medical benevolent fund, administered by the members of the honorary medical staff, for dealing with necessitous cases—e.g., widows and children of former colleagues;

(*f*) Grants to any recognised medical benevolent fund or institution; or

(*g*) Otherwise as the medical staff may decide.

It was also agreed that where members of the staffs of voluntary hospitals attend tariff patients at stated hours under arrangement they should receive adequate payment on a time basis; and that in every hospital area the Association should form a representative local advisory medical committee to be recognised by the authorities and to be represented by the Voluntary Hospitals Committee of the area.

Questions of Administration.

The following paragraphs of the Report were next carried without discussion:—

The association of officially recognised representatives of the local medical profession in the promotion and general management of hospitals and other medical charities is desirable in the interests of those institutions as well as of the profession and that for the appointment of such representatives use should be made of the machinery afforded by a division of the British Medical Association.

Where representation of benefactors, subscribers or contributors to the funds of a voluntary hospital is given on the board of management or governors of the hospital representation should be distributed so as to secure the representation of each interest in the hospital and so that no single interest should be in a majority. Contributions given with an implicit or explicit obligation of hospital service shall not rank for representation with other benefactions.

No contributory scheme for hospital benefit should be considered satisfactory unless there are arrangements for an adequate home nursing and ambulance service.

No contributory scheme should be considered complete unless there is provision for the private practitioners' use, for their patients, of laboratory and X ray facilities; and in order to protect the scheme in these cases, as also for consultations at the patient's own home, it might be found desirable for the patient to be required to pay some small additional fee for these special services.

The remainder of the Report was passed largely without modification, and the proceedings terminated with a vote of thanks very cordially accorded to the Hospitals Committee and its Chairman.

TUESDAY, JULY 25TH.

The proceedings on Tuesday morning did not commence until 11 o'clock, owing to the presence of the Representatives at the opening of the Exhibition. The agenda contained motions for the adoption of the annual report of the Council under "Public Health and Poor-law," and under "Naval and Military." Under the former a statement was made showing the good results that had been obtained by organised resistance to the attempts made at Manchester to secure a medical officer of health at an inadequate salary. Under the latter a long debate ensued as to the attitude which ought to be adopted by the Association in regard to the compulsory retirement by the Admiralty, at the age of 50, without compensation and in breach of their contracts, of some 70 or 80 surgeon commanders.

Just before the close of the meeting of Representatives the session was suspended, and the Annual General Meeting was commenced by the induction into the Presidential chair of the President-elect, Sir William Macewen, by the retiring President, Prof. David Drummond.

THE EXHIBITION.

PUBLIC HEALTH ACTIVITIES IN GLASGOW.

The exhibition of scientific appliances, drugs and chemicals, and medical foods, usually held in connexion with the annual meeting of the Association, was this year supplemented by an extremely interesting display of the recent public health activities at Glasgow. Both exhibitions were held in the Kelvin Hall, and were formally declared open before a large assembly of members of the Association and citizens of Glasgow on Tuesday morning, July 25th.

The purely Medical Exhibition was introduced to the audience by Sir William Macewen, who in a brief speech declared the exhibition open.

Bailie J. H. Allan, Convener of the Health Committee of the Corporation of Glasgow, in the absence of Lord Provost Paxton, then declared the Public Health Section of the Exhibition open. He said that it had been decided, with the advice and concurrence of Sir William Macewen, to mark this visit of the British Medical Association to Glasgow with a series of exhibits which would demonstrate the sanitary activities of the city. He invited members in particular to study what had been done in the way of demolition and transformation of slum quarters, together with the evidence of improved child health. The exhibition, he said, though primarily designed to interest and inform the Association, would in the autumn be opened to the public.

Dr. A. K. Chalmers, medical officer of the city, said that the attempt had been to show the sort of public health administration that was required in big centres of population, and dwelt upon the decline in tuberculosis. He alluded to the connexions of general biology with the study of public health, and his address on this subject before the Public Health Section will be found in another column.

Sir Clifford Allbutt said that such an exhibition was a complete answer to those who distrust expert advice, and hoped that the marked decline in tuberculosis, for which he had the authority of the Minister of Health, would be followed by a decline in venereal disease.

Sir William Macewen urged that the milk-supplies of populations should be far more rigidly safeguarded, and tuberculous stock of cattle eradicated. As an example of the value of air and sunshine in tuberculosis, he mentioned the absence of rickets in the Highlands.

I. THE MEDICAL EXHIBITION.

The Medical Exhibition was one of the best and best arranged that we remember to have seen. Many new and interesting things were on display; the Stands were light and convenient for demonstration; and in most cases those in attendance upon them were able to answer the questions put to them by interested visitors. The displays of many of the manufacturing firms covered so much ground that in attempting a summary of the Exhibition any design to sort strictly the exhibits under general headings would lead to perpetual repetition.

The exhibits have accordingly been divided into the following five groups: (1) Drugs, (2) X Ray Apparatus and Instruments, (3) Hospital Furniture, (4) Books, (5) Health Resorts. In the notes on the contents of the Stands, the number of the Stand has been affixed for convenience of reference, while the subjects selected for notice are in the main those that presented some new feature, application, or modification.

(1) DRUGS.

3. Burroughs, Wellcome and Co. (Snow Hill Buildings, London, E.C. 1). A striking and varied display was made by this firm, both of staple preparations and recently introduced products. "Iodicin" (capsule) presents, in easily administered form, a calcium salt of iodo-ricinoleic acid which is the result of experimental work in the firm's laboratories. It contains a high percentage of iodine in organic combination and may be prescribed in conditions in which iodides are indicated, with the advantages that it is tasteless, odourless, stable in the presence of gastric juice, and free from irritating qualities. In view of the extending use of pluri-glandular therapy, special interest was shown in the exhibit by this firm of tubes containing specimens of the various dried gland substances which go to make up "tabloid" mixed glands, male and female, for endocrine treatment. Other exhibits deserving of special mention were "Moogrol" and Sachs-Georgi Antigen. "Moogrol," a new therapeutic agent for use in leprosy, represents the outcome of investigations dating as far back as 1904. A mixture of esters of acids of the chaulmoogric series, the reports of therapeutic trials indicate encouraging results both by intramuscular and intravenous injection. The test introduced by Sachs and Georgi in 1918, for the diagnosis of syphilis, while giving results which agree in more than 90 per cent. of cases with the Wassermann test, is much easier to carry out than the latter, only one reagent and little apparatus being required. "Wellcome" brand Sachs-Georgi Antigen is a modification of that recommended by Sachs and Georgi and is designed to provide a test giving more easily readable results than the ordinary Sachs-Georgi test while retaining the same general percentage agreement with the Wassermann reaction. "Sketofax" antiseptic cream for repelling the attacks of mosquitoes and "Laxamel," a pleasantly-flavoured jelly-like confection for intestinal lubrication, may also be noticed among therapeutic novelties.

4. Parke, Davis, and Co. (50–54, Beak-street, London, W. 1) gave a display illustrating in a practical manner the extension of pharmaceutical standardisation. Bacterial vaccines prepared in the laboratory of St. Mary's Hospital under the direction of Sir Almroth Wright were exhibited at this Stand, while among the novelties, two may be mentioned as being likely to be of special use to the medical profession, "Neo-protosil" and adrenalin gauze tape. "Neo-protosil" is a colloidal proteid silver iodide compound containing about 20 per cent. of silver iodide. It occurs in the form of cream-coloured scales, and it readily dissolves in water, but when making a solution the container should be briskly shaken for about a minute to prevent the scales adhering together. It is desirable that solutions should be prepared at least once a week. On standing for several weeks silver iodide is gradually deposited. The solutions are bland and bacterial tests show that the substance is equal in every respect to colloidal silver solution, without the inconvenience of staining. As an antiseptic, astringent and sedative, it is indicated in cases of specific urethritis, inflammatory conditions of the eye, ear, nose, throat, bladder, vagina, uterus, &c., in solutions of various strengths, according to the condition to be treated. Adrenalin gauze tape is a sterilised gauze of soft texture in tape form impregnated with 1 in 2000 solution of adrenalin chloride. It is packed in air-tight, aluminium containers with screw caps which allow of the removal of any desired length of gauze without exposing the whole. The well-known constringent and hæmostatic action of adrenalin can thus be employed conveniently and efficiently by making use of this action. The tape has proved effective as a hæmostatic packing after nasal sinus operations, especially after curettage of the ethmoidal cells, in operations on the maxillary sinus, in mastoid operations after the removal of the turbinate bodies, and particularly in hæmophiliac bleeding.

8. John Bell and Croyden, Ltd., incorporating Arnold and Sons, Ltd. (Giltspur-street, London, E.C. 1, and Wigmore-street, W. 1), gave a comprehensive exhibition; owing to the union of the two houses the firm can claim to be universal hospital outfitters. On the surgical side could be seen an interesting selection of operation tables, a fine combination set of high-pressure steam sterilisers, portable electric sterilisers, a large variety of cystoscopes, urethroscopes, and other surgical instruments, while a new departure in operating theatre lighting is an apparatus styled a daylight lamp, which enables the surgeon to discern the colours of any tissue exposed. On the pharmaceutical side particular attention may be called to "Phlogetan" and "Femergin." "Phlogetan" is a preparation for subcutaneous use formulated by Prof. Oskar Fischer, and prepared by Prof. Weichowsky in the laboratories of the University of Prague. It is a derivative of albuminoid bodies containing nucleo-proteid; it has been used on the continent with good results in tabes dorsalis, progressive paralysis, and angina. "Femergin" Sandoz is the tartaric salt of a newly discovered alkaloid of ergot, whose hæmostatic property of ergot it exhibits.

14. Genatosan, Ltd. (Loughborough, Leicester). The principal exhibits of this firm, who are the British

purchasers of Sanatogen, were their detoxicated vaccines. The process of detoxication by this preparation can be applied to various germs, the immunising power in accordance with dosage is indicated in complement-deviation tests as set out in THE LANCET in February and March, 1920, and later in other medical journals. The exhibits included specimens of protein fractions of the various bacteria and the varieties of vaccines available. 21. Jeyes' Sanitary Compounds Co. (64, Cannon-street, London, E.C.). On the Stand of this company were displayed all the numerous preparations in which the bactericidal power of Cyllin is employed as an internal or external antiseptic. The firm were also distributing samples of branalcane, concerning which preparation they have received good medical testimony. This is an antiseptic, sedative, and non-poisonous remedy for cases of ulcerated sore-throat, stomatitis, follicular tonsillitis, thrush, diphtheria, &c. It consists of a 33 per cent. solution of glycyl borate (boroglyceride) in glycerine, coloured with 0·002 per cent. of rubin, and can be obtained in 2 oz., 6 oz., or 12 oz. bottles. 24. Duncan, Flockhart and Co. (Edinburgh). This house, the original home of chloroform, exhibited a wide range of organo-therapeutic preparations, and a comprehensive series of protein tests for cutaneous inoculation. These were introduced to the profession at the suggestion of Prof. J. C. Meakins, and the recent proceedings at the Medico-Psychological Association of Great Britain in Edinburgh has lent a new and practical interest to such endocrine products [1] 25. Crookes' Collosols (22, Chenies-street, London, W. 1). A series of these preparations for colloidal use was displayed by this firm, who called special attention, as a recent introduction into the series, to Collosol Calcium, indicated in the control of hæmorrhage and tuberculosis.

26. Boots Pure Drug Company, Ltd. (Nottingham). This company had a very large display of pharmaceutical and special medicinal products, while their representatives were asking visitors to observe the preparations employed in arsenobenzol therapy—Salvarsan-Boots, Neo-salvarsan-Boots, and Stabilarsan. The last is a stable compound of "606" and glucose supplied in a solution ready for use in intravenous or intramuscular injection. The firm can quote excellent medical evidence for the value of this preparation in cases of syphilis, where advanced visceral lesions or dermatitis give no contra-indications. Intravenous injections are, of course, not employed in cardiac or visceral disease or nephritis. 28. Oppenheimer, Son, and Company, Ltd. (179, Queen Victoria-street, London, E.C. 4). This firm gave a comprehensive show of their well-known palatinoids which are particularly suitable for the administration of organo-therapeutic products, bi-palatinoids, and pulverettes. Their representatives were also calling attention to "Roboleine," a reconstructive food for infants and invalids designed to contain various classes of vitamins by the inclusion of cream of malt, red bone marrow, jelly from ox-bones, and lemon juice. Considerable interest was shown in their oxygen generator which is an extremely useful piece of apparatus for producing pure oxygen and should prove valuable, not only in a general way, but more particularly in outlying districts and in sudden emergencies. The apparatus works somewhat on the principle of Kipps's H_2S apparatus, compressed blocks of purified sodium peroxide being submitted to the action of water when pure oxygen is generated, which can either be used direct after passing through a wash-bottle or can be collected in convenient gas-bags for temporary storage. The pressure generated by the escaping gas causes the water to recede into the outer chamber, thus stopping the process when desired. The generator should obtain considerable vogue owing to its extreme simplicity and portability. 29. Allen and Hanburys, Ltd. (48, Wigmore-street, London, W.). Among the exhibits at this Stand were such well-known instruments as those devised by Dr. Comyns Berkeley and Mr. Victor Bonney for gynæcological and obstetrical work, those introduced by Sir J. Thompson Walker for bladder operations, the instruments for brain surgery invented by Mr. Percy Sargent, and the latest models of Mr. G. Waugh's apparatus for operation work on the tonsils. Attention was also called by the firm to the "London Hospital" ligatures, of which they are the sole distributors. These fine catgut ligatures, which are in cachets, are supple, elastic, and strong, and the sterility of each batch has been bacteriologically verified. 32. Anglo-American Pharmaceutical Co., Ltd. (Galen Works, Croydon). The distinctive feature of this stand was the show of Huxley pharmaceutical products, among which the glycero-phosphate preparations are especially popular. Other well-known preparations of this stand were Colchi-sal and the oddly named Ku-gloids. Colchi-sal, a preparation containing the alkaloid colchicine methyl salicylate and cannabis indica has been used for many years by medical men in the treatment of various manifestations of gout. "Ku-gloids" are antiseptic and tonic throat capsules of considerable convenience in catarrhal conditions. Samples of Agar-lac, a combination of agar-agar with lactic ferments and phenolphthalein, were also on this Stand, the representatives being able to supply evidence of the value of the preparation in constipation or as a laxative. At the next Stand, 33, Kolynos Incorporated (Chenies-street, London, W.C. 1) showed examples of their well-known dentifrice, and hard by was the Stand of 36, Gaymer's Cyder (Attleborough, Norfolk); to the virtues of this beverage we have called attention in our columns, and agreeable samples were available on the spot. 37. The Maltine Manufacturing Company, Ltd. (9, Holborn Viaduct, E.C. 1), showed specimens of the original Maltine, as supplied in combination with many other drugs, and also samples of Maltoline, a preparation introduced recently as a combination of maltine, olive oil, and glycero-phosphates of lime and soda; this has proved a useful combination in marasmus and allied conditions.

At Stand 40 Messrs. Savory and Moore, Ltd., had made a particular feature of "Ethanesal." This antiseptic has the physical property of ether, is anhydrous, free from sulphur compounds, and has a neutral reaction. It contains a substance oxidised to acetaldehyde by chromic acid—presumably ethylic alcohol. An analysis was published in THE LANCET of June 18th, 1921, the anæsthetic properties having been described in our columns previously by Dr. Mackenzie Wallis and Dr. C. L. Hewer. At an adjoining Stand, 42, The Cromessol Company (323, Paisley-road West, Glasgow) were scenting the atmosphere with their pleasant disinfectant preparations composed of essential oils and attars of flowering plants combined with formaldehyde. 45. The Anglo-American Oil Company, Ltd. (Minerva House, Bevis Marks, London, E.C. 3). On this Stand a particular feature was being made of Nujol, an oil with an undeviating standard of viscosity, a quality which is necessary in preparations of petroleum which are to be employed as an intestinal lubricant. The exact chemical analysis of this oil has long been known to our readers, the claims of the firm having been substantiated in our laboratory. The oil is brilliant, clear, colourless at ordinary temperatures, and fulfils the requirements of the B.P. It should be remembered that of these requirements the essential one is that the oil should be a lubricant, so that the viscosity constant is of importance. 47. The Chas. H. Phillips Chemical Co. (14, Henrietta-street, London, W.C. 2). The two prominent exhibits of this Stand were the well-known "Milk of Magnesia" and "Phospho-Muriate of Quinine Compound," which has been found, as would be expected from its title, useful as a stomatic and nerve tonic. 48. Joseph Nathan and Co., Ltd., showed samples of Glaxo, and 52, J. C. Eno, Ltd., displayed the recent methods for distributing this well-known laxative. 62. Anglo-French

[1] See THE LANCET, July 29th, 1922, p. 230.

Drug Company, Ltd. (238A, Gray's Inn-road, London, W.C. 1). This firm displayed also the wares of Modern Pharmacals (48, Mortimer-street, London, W. 1), among which was prominent "Glucarsenol." We have recently published an analysis of this substance, a solution of novarsenobenzol to be used for intramuscular injection (see THE LANCET, Feb. 25th, 1922, p. 382). The substance has been carefully tested for toxicity, and the advantages claimed for it are that it mixes perfectly with the serum, so that smooth injections are easily made with a fluid which is painless, completely absorbable, and unaffected by temperature or climate. At Stand 53, Messrs. Cadbury Brothers, Ltd., exhibited their well-known Bournville cocoa, and at 58 Numol Limited, 3, College-street, Newcastle-upon-Tyne, showed their various invalid foods and surgical antiseptics. They were able to produce good evidence for the value of their lecithin food, Numol, in the generality of wasting disease conditions.

(2) X RAY APPARATUS AND INSTRUMENTS.

2. Thompson-Plaster X Ray Co. (36, Gunterstone-road, London, W. 14). At the Stand of this company two styles of the combined treatment cabinet, with oil insulated transformer, were exhibited as well as many ingenious aids to the application of X ray treatment. 3. Schall and Son (71 and 75, New Cavendish-street, W. 1). The most noticeable exhibit at this Stand was a deep therapy couch with overhead gear. The couch is a felt-covered table, in which sections can be raised, and leg rests arranged for the comfort of the patient. A special overhead tube box is held in a wooden fork, suspended from a travelling carriage, moving in two directions at right angles. The wooden fork can be shifted to any position from vertical to horizontal and clamped down. The moving carriage can be arrested by a break so that the tube can be adjusted to any position and rigidly held there. The rails on which the carriage moves can be fixed to the wall of the room or supported on pillars. The apparatus is beautifully made. 11. The Dowsing Radiant Heat Co., Ltd. (91 and 93, Baker-street, London, W. 1), showed the latest form of apparatus for giving radium heat treatment by means of luminous rays. All the apparatus is thoroughly well made, and can be supplied on hire to medical men, hospitals, nursing homes, and institutions. 12. Ogilvy and Company (18, Bloomsbury-square, W.C. 1) had a fine Stand and an admirable display of microscopes and microscopic accessories. We noticed in particular a new combined mono-binocular microscope for research work. The microscope has interchangeable body tubes, so that for the purpose of micro-projection one can employ a monocular tube. The interchanging of the tubes affected the primary adjustments as little as the interchanging of eye-pieces in the ordinary microscope. The firm are the British agents for Ernest Leitz, Wetlzar. At Stand 17 J. W. Atha and Co. (8, Southampton-row, London, W.C.) exhibited a general selection from their medical and ophthalmological department; this firm is the sole distributing agent for Carl Zeiss, of Jena. 27. Down Bros., Ltd. (St. Thomas's-street, London, S.E.). At this Stand there was a full collection of surgical instruments and appliances, most of them either in the original models or in certain modifications designed by the actual surgeons employing them. Many of these instruments have been noted in THE LANCET upon their introduction to the medical profession, or in the course of clinical articles. 30. J. Gardner and Son (32, Forrest-road, and 22, Teviot-place, Edinburgh) showed a collection of surgical instruments and appliances, most of which were upon patterns suggested by operating surgeons.

35. Archibald Young and Son (57 to 61, Forrest-road, Edinburgh) showed a representative selection of instruments designed for use in every class of medical work. This firm pointed out in their own description an obvious, but none the less not previously mentioned point, that instruments for the young remained largely unaltered, but those for adults have been greatly modified since the war; with the changes necessitated by the pathology of war they have kept abreast. 50. John Weiss and Son (287, Oxford-street, London, W.1) displayed the latest designs in general and ophthalmic instruments; while at Stand 55, Theodore Hamblin, Ltd. (5, Wigmore-street, London, W. 1), offered for inspection an extensive range of ophthalmic equipment and instruments. 57, British Dyestuffs Corporation, Ltd. showed samples of their well-known stains for microscopic work, and for antiseptic and medicinal employment. 61. J. F. Rowley (1919), Ltd. (Roehampton House, Roehampton-lane, London, S.W. 15). The representative of this firm, with the aid of an illustrated catalogue, was able to give full and interesting information concerning a large and varied collection of orthopædic appliances. The Rowley light-metal limb is a notable example of the firm's inventiveness; with easily regulated adjustments at the knee-joint it can also be fitted with a sponge rubber foot, ensuring poise and balance without losing durability. 64. W. Watson and Sons, Ltd. (313, High Holborn, London, W.C. 1). This firm was represented at the Exhibition by Messrs. W. W. Scott and Co. (180, Sauchiehall-street, Glasgow), who showed a variety of microscopes, many of which are in general use for medical and research work. Special stress was laid upon two instruments, "The Service" and the "Kima," both designed with an eye upon the student. A specification of the "Kima," which can be obtained on application to the firm, proves that this well-designed microscope offers to students at a reasonable cost facilities for really high-class work. 65. Beckett and Bird, Ltd. (3, Blythswood-square, Glasgow). The firm, which can be addressed also at 38, New Cavendish-street, London, W. 1, worked for the Ministry of Pensions Special Surgical Hospital. They showed orthopædic appliances and surgical supports of all types, as well as the popular "Curtis Belt," for which they are the agents. 73. Kodak, Ltd. (Kingsway, London, W.C.), had for inspection tested chemicals and every form of X ray photographic accessory. Some wonderful negatives on Eastman "Dupli-Tized" X ray film were on display in which deep abdominal conditions were as easily recognisable as thoracic defaults. These pictures were ready for reproduction in scientific literature, a compliment that cannot be paid to many illustrations of Rontgen work. 77. Mayer and Phelps (59 and 61, New Cavendish-street, London, W. 1) showed a large range of surgical instruments and aseptic hospital furniture, and at an adjoining Stand, 79, J. E. Hanger and Co. (Roehampton House, Roehampton-lane, London, S.W.) displayed their "Hanger Legs," light metal artificial limbs for the subjects of amputation through the hip, and above and below the knee. 80. The Holborn Surgical Instrument Company (Thavies Inn, Holborn Circus, E.C. 1) showed an assortment of their latest productions, as well as the Hartmann accouchement outfits, and at the next Stand, 81, Hinders, Ltd. (27, Francis-street, London, W.C. 1), had for inspection some specially shaped foot-supports designed to maintain the plantar arch, or correct elevation by the metatarsal phalangeal joints.

(3) HOSPITAL FURNITURE.

1. Hoskins and Sewell, Ltd. (Bordesley, Birmingham). At this Stand were shown the well-known Hoskin's hospital beds, with special equipments designed for use in sanatoriums, and maternity and children's hospitals. One patent wheeling bedstead we were shown, which is in use at Alton and other institutions in which rapid transport of the patients into the air or sun is required; here the wheeling adjustment was so good that one nurse with the minimum of effort could take bedstead and patient from the ward to the terrace. On this bed we saw adjusted the "Alton Sunshade," a very ingenious design, by whose neat mechanism the shade can be made to shield the head and shoulders of a patient while receiving sun treatment, from whatever quarter the sun is coming or at whatever altitude. The sun-

shade can be folded neatly away behind the bed when not in use. 71. Charles Hearson and Co. (235, Regent-street, London, W. 1). These well-known manufacturers of research apparatus showed the latest material for technical work in pathology and bacteriology, physiology and chemistry. At their Stand were models of incubators, sterilisers, baths, ovens, microscopes, and microtomes, all designed to fulfil the actual wants of well-known workers. The "Isodor" refrigerator shown by this firm attracted a great deal of interest. It is of neat appearance, small for what it is required to do, and very economical for what it can do. It is a four-chambered store cupboard with a refrigerating machine unit driven by an electric motor. The interior of the store cupboard can be set to remain indefinitely at any temperature between 25° F. and 50° F., the operation of the motor and compressor being controlled by an automatic thermostat adjustable at any temperature between the points indicated. The claims of the firm that it requires no skilled engineer to control it, that it uses no ice and makes no mess are justified, and we can understand that the refrigerator is popular. 20. Ronuk, Ltd. (Portslade, Sussex). This firm showed panels brought up to high brilliancy by their popular floor polish; and at Stand 39, A. H. Hamilton and Co., Ltd. (Possilpark, Glasgow), exhibited their equally well-known preparation for a similar purpose. The introduction of these preparations into institutions large and small have lightened labour as well as promoted health.

(*To be continued.*)

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lieut.-Cmdr. (D.) G. E. Wood is placed on retd. list.

ROYAL NAVAL VOLUNTEER RESERVE.

C. C. Elliott is granted commn. as Surg.-Lieut.

ROYAL ARMY MEDICAL CORPS.

The undermentioned retire on retd. pay: Lt.-Col. C. H. Furnivall, Lt.-Col. G. B. Crisp, and Maj. A. S. Arthur (granted the rank of Lt.-Col.).

Capt. and Bt. Maj. A. G. J. MacIlwaine retires, receiving a gratuity.

Maj. F. A. H. Clarke relinquishes the temp. rank of Lt.-Col. on ceasing to be spec. empld.

Maj. A. C. H. Gray to be temp. Lt.-Col. whilst empld. as Asst. Dir. of Pathology.

Capt. H. A. Crouch, from the half-pay list, is restd. to the estabt.

The undermentioned relinquish their commns.: Temp. Maj. H. St. A. Agate (retains the rank of Maj.), and Temp. Capts. F. Osborne and R. K. S. Sutherland (who retain the rank of Capt.).

ROYAL AIR FORCE.

Flight Lt. A. C. Ransford is granted a short service commission, retaining his present substantive rank and seniority.

PEOPLE'S LEAGUE OF HEALTH: DEPUTATION TO THE MINISTRY OF LABOUR.—The Minister of Labour appointed his Parliamentary Secretary, Sir Montague Barlow, to receive a deputation from the League on August 2nd, when the physiological and psychological aspect of the Effect of Unemployment and the Dole on the Health and Habit of the Nation were laid before him by the following members of the Medical and Lay Councils of the League: Mr. C. J. Bond, F.R.C.S., Chairman Consultative Committee, Ministry of Health; Sir Bruce Bruce-Porter, M.D.; Colonel S. Lyle Cummins, M.D., Professor of Tuberculosis, South Wales University; Lieut.-Colonel F. E. Fremantle, M.P., F.R.C.P.; Sir Alfred Fripp, F.R.C.S.; Miss Olga Nethersole; Captain Donald Simson, representing the British Legion; and Dr. W. A. Potts, Psychological Expert to the Birmingham Justices. The deputation was introduced by Sir Alfred Fripp and Captain Simson, who laid before the Ministry of Labour a definite scheme by which the money now spent on unemployment pay could be directed into a productive method of giving employment.

Obituary.

ARTHUR RANSOME, M.D. CAMB., F.R.C.P. LOND., F.R.S.,

CONSULTING PHYSICIAN, MANCHESTER HOSPITAL FOR CONSUMPTION.

WE announced last week the death at an advanced age of that veteran pioneer in public health, Dr. Arthur Ransome, which took place at Bournemouth on July 25th.

Arthur Ransome was born at Manchester in 1834 of a line of distinguished surgeons. His father, Joseph Atkinson Ransome, was honorary surgeon to the Manchester Royal Infirmary from 1843–66, and was among the first to use carbolic acid in the treatment of septic wounds. His grandfather, John Atkinson Ransome, who held the same position from 1806–37, was also an F.R.C.S., and is credited with the first use of animal gut for the ligature of arteries. Arthur Ransome was himself educated at Manchester, Trinity College, Dublin, and Caius College, Cambridge, going on to St. George's Hospital, London, to complete his clinical studies. He qualified M.R.C.S. in 1855, L.S.A. in 1856, M.B. Camb. in 1858, M.D. in 1869, and M.R.C.P. in 1890, being elected a Fellow in 1889. Although on qualifying he practised as a physician in Manchester and Bowdon, Ransome's bent was from the first towards the preventive side of medicine, and in 1874, shortly after the amalgamation of Owens College with the Royal School of Medicine, he became lecturer on hygiene in the College, and was later elected to the chair of public health which he resigned on quitting Manchester in 1895. Students of that period remember the enthusiasm with which Ransome demonstrated to them the movements of the chest as shown by the stethometer which he invented and which gained for him his F.R.S. From 1876 to 1878 he was also lecturer on forensic medicine in Owens College, he was an honorary Fellow of Caius College, Milroy lecturer in 1890, and examiner in hygiene at the Universities of Cambridge and Manchester.

Vital statistics had a particular interest for Ransome at an early stage of his career and he was successful in infusing others with his own keenness. In 1860 he was responsible for the initiation in Manchester and Salford of a weekly register of all new cases of certain diseases, phthisis among them, securing for this purpose the voluntary help of 30 contributors; these returns, made with regularity for 12 years, were the forerunners of the elaborate system of official notification. His native city provided abundant opportunity for the study of insanitary conditions, and he was indefatigable in directing public attention to the necessity for improving the hygienic milieu of daily life. He was the leading spirit in the Manchester and Salford Sanitary Association, founded in 1852, the oldest society of its kind in the kingdom, presiding over its gatherings and frequently lecturing on health matters to public meetings arranged under its auspices. He was associated with the establishment of a training institution for visiting nurses, and an active helper of the Children's Country Holiday Fund.

His successful practice as a physician and his appointment to the honorary staff of the Manchester Hospital for Consumption brought him into daily contact with large numbers of cases of disease of the lungs, more especially tuberculosis, and his scientific study of the mechanism of respiration was embodied in his first publication, on Stethometry, in 1876. This was followed by State Medicine in England (1877), Prognosis of Lung Disease (1882), Limits of Infectiveness in Tubercle (1884), Treatment of Phthisis (1896), and Researches on Tuberculosis (1897). With his colleague, the late Prof. Delépine, he published reports in 1893 and 1895 on the inspection of tubercle-infected houses. A good conspectus of

Ransome's services in the Campaign against Consumption may be gained from the collection of his papers under this title, published in 1915 by the Cambridge University Press. The first article in this collection gives the gist of a health lecture for the people published in 1881 just before Koch's discovery of the tubercle bacillus, and it is remarkable evidence of the author's clear vision that the address may still be read without any feeling of incongruity. The positive lighting-up of consumption, he there states, depends upon external circumstances; if these are not present, the disease will not become developed—a statement as true now as when it was written. The second lecture, dated 1887, considers the new evidence of infectivity then available. Ransome asks how it is that in the wards of a consumptive hospital, or in the sick rooms of well-ventilated houses, phthisis never attacks the attendants, while even in the confined dwellings of the poor, direct contagion is a rare event, and he goes on to doubt whether our knowledge of the natural history of the microbe was yet sufficiently complete to account for the practical manifestations of the disease. In a further address, published in 1912, he cordially endorses Flick's dictum that of all diseases tuberculosis more than any other is a house disease; it is implanted in the house, develops in the house, and matures in the house. And finally, in the paper read in August, 1913, he sums up the measures for direct attack upon the disease, urging the authorities concerned in the strife to persevere with notification, with disinfection of infected places, with provision of opportunities of segregation for all cases of open tuberculosis, and with care for the purity of milk- and food-supplies. All the adverse influences weighing so heavily upon the male phthisis rates must, he said, be grappled with. The proclivity of the occupied male to the disease was a subject with which he frequently dealt. The value of sanatorium treatment, he thought, must be due to some extent to its blood-making power, a power which might have to be pushed beyond the limits of perfect health. He firmly believed that the bacillus of tubercle was not merely a parasite, but that it could live upon material outside the body. Dr. R. B. Wild tells us that when he was lecturer in pathology, Ransome often brought to the laboratory specimens of sputum exposed to various conditions of sunlight, wind, and moisture, for the effect of such exposures to be determined by virulence tests. His views on reinfection were very precise. Noting the frequent interval of 3–6 weeks between the patient's return home from the sanatorium and a fresh outbreak of the disease, he deduced the usual incubation period of tuberculous infection. Absence of efficient ventilation and presence of organic matter in the air seemed to him factors intensifying the virulence of the organism outside the human body, and evidence collected from infected areas in Manchester and Salford supported this observation. He endorsed Dr. Niven's indictment of the public-house as a frequent source of infection, where all the necessary factors came into play.

Of Dr. Ransome's personal qualities it is less easy to speak, for he had long survived most of his friends and colleagues. Dr. A. Hodgkinson, who was associated with him over a period of many years at the Hospital for Consumption, writes of the most distinctive feature of Ransome's life as the persistent quiet, unobstrusive way of accomplishing whatever he took in hand. Several of those who still remember him in his prime feel that his work never received the recognition which it deserved. He was, in fact, much in advance of his time, and his energy in the study of his favourite subject remained unabated in his retirement.

Dr. Ransome married in 1862 Miss Lucy Fullarton, by whom he had three sons and four daughters. He felt very keenly the loss of one of his medical sons who was in practice at Bowdon, and who died while on duty in the war hospital at Whalley. His wife predeceased him.

SIR EDWARD MALINS, M.Sc. BIRM., M.D. EDIN., F.R.C.P. LOND.,

CONSULTING OBSTETRIC PHYSICIAN TO THE GENERAL HOSPITAL, BIRMINGHAM.

Sir Edward Malins died at his residence in Birmingham, on July 23rd, at the age of 80. Born at Liverpool in 1841, the son of Dr. Samuel Malins, he was educated at King Edward's School, Birmingham, and at the University of Edinburgh, graduating M.B., C.M. in 1866 and becoming M.R.C.S. in the same year. He proceeded to the M.D. degree in 1869. At the very outset of his career, Malins decided which branch of medicine he would pursue, and his first appointment was that of house surgeon to the Royal Maternity Hospital, Edinburgh. In 1876 he was appointed medical officer to the Hospital for Women, and to the Lying-in Charity, Birmingham. Eventually he became obstetric physician to the General Hospital, Birmingham, to which institution he was attached in this capacity and later as consulting physician for 45 years. In 1901, the year in which he became M.Sc. Birm., Malins was elected President of the Birmingham branch of the B.M.A., and chose for his address the subject of Midwifery and Midwives, in its historical aspect. He closed this address with a reference to the lack of supervision of midwives in this country, and a prediction, since fulfilled, that the time would come when Government supervision of midwives would be an established policy. In 1902 he became a Fellow of the Royal College of Physicians of London, and a year later President of the Obstetrical Society of London, having also held the office of President of the Midland Medical Society. At one time Sir Edward Malins was examiner in medicine and diseases of women for the Conjoint Board, the University of Bristol, and the Victoria University of Manchester. On his special subject he made many valuable contributions to medical literature and wrote a section of Allbutt and Playfair's System of Gynæcology; for many years he was a valued correspondent of THE LANCET. For his essay on the Pathology and Treatment of Diseases of the Ovaries in 1873 Malins was awarded the Hastings Medal of the British Medical Association.

An old friend writes:—"Thirty years ago when I became his junior colleague at the old General Hospital, Malins had already been in practice in Birmingham for 20 years, and his name was a household word in the city and a large surrounding district. I was at once impressed by the constant and punctual discharge of his hospital duties and by his devotion to and sympathetic interest in his patients, as well as by his knowledge and skill. His patients looked up to him with esteem and respect, and returned his care with real affection. In the students he took a close and kindly interest, and to his colleagues, and especially the juniors, he was ever considerate and loyal. When illness or misfortune overtook those who had worked with him his ready sympathy, and, when needed, his generous help were unobtrusively given. Malins became a specialist by virtue of a long and arduous general training, first by apprenticeship, then by the usual course in the University of Edinburgh, and afterwards by some years in busy general practice. Before leaving Edinburgh he had become assistant to Sir James Simpson, and so had acquired a sound practical acquaintance with the principles of midwifery and diseases of women. Through the whole of his life his mind remained open to new ideas, and he earnestly and successfully strove to keep abreast of advances in knowledge and practice, as the specialty developed from the era of mechanical pathology and pessaries to that of more modern surgical and scientific methods.

"As professor in the University, Malins took the greatest pains to keep his teaching on the highest and most advanced level, was assiduous and punctual in the discharge of his duties, and possessed the esteem and regard of the students to a marked degree. As an examiner he was impartial, patient, and considerate. Malins devoted a large part of his life to the service of

the General Hospital and of the University, taking a profound interest in both, and giving to them of his best. Outside his professional work he had many interests. A devoted and hard-working churchman, he practised his religion without ostentation in his daily life. In political and social matters he took an active interest, and of general literature he was a diligent and widely read student. At the University Graduates' Club, of which he was twice president, he was a regular attendant. In daily intercourse Malins bore himself with quiet and unassuming courtesy. To him came many honours, unsought, modestly accepted, and sustained with dignity. Among them, the most welcome to his local brethren and I think to himself, was the highest in the power of the members of his specialty to bestow, the presidency of the London Obstetrical Society, to which office he was the first provincial member to be elected. His presence and example will be missed in many circles, and his place will not readily be filled."

Sir Edward Malins, who was knighted in 1919, and was a J.P. for the county of Warwick and for the city of Birmingham, married, in 1869, Mary, daughter of Edward Owen, C.E., by whom he had five sons and one daughter.

DR. JOKICHI TAKAMINE.

Dr. Jokichi Takamine, the eminent Japanese chemist, died in New York on July 22nd. Born at Takaoka in 1854, Takamine was the grandson and son of medical men, and he, too, was trained with a view to the practice of medicine. His father had studied in Holland under the Dutch school, but appreciating the difficulty of the language he sent his son early to the foreign settlement at Nagasaki, and it was there that Takamine obtained a thorough working knowledge of the English language. He was one of the first graduates of the Imperial University of Japan, and after taking his degree as Master and Doctor of Technology some 45 years ago, he was sent to this country, with 11 other students to complete their studies, and was thus one of the first fruits of the Japanese Renaissance. Takamine went to Glasgow and commenced the study of the chemistry of brewing under Prof. Penny at the old Andersonian College, where he worked at mycelial ferments, which ultimately led to the discovery of the amylolytic substance now, and for many years, known as taka-diastase. He became a Fellow of the Chemical Society. Returning to Japan in 1881 he was put at the head of the Department of Agriculture and Commerce. Having married an American lady in 1887, he went in 1890 to the United States, where he became associated with Messrs. Parke, Davis and Co., and in his laboratory at New York devoted himself to research work. In 1898 he took up the search for the active principle of the suprarenal gland, which was then being studied by many physiological chemists in America and Germany, notably among others by Abel of Johns Hopkins, Aldrich of Detroit, and Otto von Fürth of Strasbourg. Takamine was fortunate in being first in the field with adrenalin, which was introduced to the medical profession in 1901 by Messrs. Parke, Davis and Co. In addition to being consulting chemist to this firm, he was the head of the Takamine Laboratory, New York, and the Takamine Ferment Co., and was associated with Sankyo and Co. of Japan. His active career was mainly spent in the United States, where he had great political influence, being known in some circles as the unofficial representative of Japan, but he was constantly visiting his native country, in whose infant chemical industries he took a paternal interest. He also visited this country from time to time, and in 1901 he made a tour, in the course of which he addressed large meetings of medical men in Glasgow, Edinburgh, and elsewhere, on the chemistry and therapeutics of suprarenal extract. Dr. Takamine had a firm belief, to which he then gave expression, in the rôle of medicine as a civilising force in Asiatic countries.

Correspondence.

"Audi alteram partem."

? CAUSE OF DEATH.

To the Editor of THE LANCET.

SIR,—I was called to give evidence in the following case :—

A. M., aged 64, a bootmender, about 5 feet in height, went to bed after expressing a feeling that he was going to have a better night's rest than usual. At 9 A.M. next day he was found dead. The body was in a kneeling position on the floor with the front of the neck resting in the loop of a handkerchief which was hooked over the knob of the bed.

External Appearances after Death.—Surface cold, no rigor mortis, face pale. No froth at the mouth. Hands extended. On the front of the neck there was a pressure mark extending from ear to ear. There was no bruising or abrasion of the skin.

Autopsy (about 38 hours after death).—The body was that of a small man fairly well nourished. It was rigid. The mark on the neck was just visible. There was a scar of an incised wound 1¼ inches in length above the pubes in the middle line. In the centre of this was a fistula leading to the bladder from which urine exuded on compression of the abdomen. Thoracic viscera : No injury to trachea ; lungs normal ; heart, small, 8¼ oz., considerable fatty degeneration, a small quantity of blood in both ventricles ; valves healthy. Abdominal viscera : Stomach contained a small quantity of semi-digested food ; intestines normal ; liver, 39¾ oz., normal ; kidneys, left, 5¾ oz., normal, right, 5¼ oz., cystic ; bladder adherent to the abdominal wall, thickened, and fibrosed, containing 14 stones varying from the size of that of a pea to a pigeon's egg. The mucous membrane was ulcerated in patches. Brain : Normal.

Why did this man die ? There was nothing in his physical condition or surroundings to account for sudden death. The cause was presumably mental. Was it fear ? I see no evidence of it. He had previously expressed a wish to die and had threatened suicide. Nor is this surprising seeing the condition of his bladder. Apparently he decided to kill himself by hanging and, kneeling down, he placed his head in the looped handkerchief.

I suggest that, with his limited medical knowledge, he thought that, in the words of Mercutio, this was enough, "'t would serve," and that this thought, plus a damaged heart and the will to die, was the decisive factor in causing his death. Perhaps some of your readers may think of other causes.

I am, Sir, yours faithfully,

London, N., July 30th, 1922. HENRY BIRD.

THE INTESTINAL FLORA.

To the Editor of THE LANCET.

SIR,—I welcome Dr. W. R. Logan's criticism in your issue of July 29th, as it gives me an opportunity of elaborating a point which may be useful. I can assure Dr. Logan that I had not overlooked any of the data to which he referred as the basis of his criticism. I do not profess to be a bacteriologist, although I am very keenly interested in the application of simple bacteriological methods to the diagnosis and treatment of the many chronic diseases met with in every-day practice, whose ætiology is obscure and for which our present treatment is ineffective. In the course of this inquiry I ascertained the facts which formed the basis of my communication. Before publication I fully realised the advisability of ascertaining the opinion of some expert bacteriologists on the general findings and conclusions which I had drawn from my observations. To this end I have in the course of the past six months invited the interest and opinion of some bacteriologists, several of whom rank as the most distinguished exponents of bacteriology in this country. All of these had the opportunity of seeing the films on which the conclusions were based, and all with one exception repeated the observations by the use of the new medium supplied to them. In conversation with them I further had the opportunity of confirming the impressions I had formed as to the

media in common use in the routine investigation of general medical cases. The results were communicated in my paper.

The *first* authority consulted saw much of interest and value in the method because for the first time it yielded on primary culture a film which closely approximated to the original fæcal smear. The *second* was equally interested and very kindly sent me films which he himself prepared confirming my results, with a suggestive commentary. The *third*, a distinguished authority on streptococci, showed a similar interest in the facts, and was of the opinion that further investigation would show the method to be a valuable one for a study of the life-history of the streptococcal group of organisms. The *fourth* and *fifth*, as a result of independent investigation, also confirmed my main conclusion. They showed an interest, appreciation, and willingness to coöperate in investigating, from their own standpoint, the observations which the clinician makes in the course of the routine investigation by simple bacteriological methods of the cases under his care. In the case of the *sixth* I failed to secure either interest or willingness to test the value of the observations made. He expressed many views similar to those given in Dr. Logan's letter; these appear to me in no way to invalidate the accuracy of the facts or conclusions drawn from them.

One word in conclusion. If many problems that are still awaiting solution in regard to the relationship of bacteriological infection or intoxication from the bowel are to be solved, the solution will, in my judgment, only be effected by the cordial coöperation of clinicians who have a slight knowledge of simple bacteriological routine, and are willing and anxious to work in coöperation with expert bacteriologists. My paper was intended as a contribution in this direction. It has been a great pleasure to me, as a clinician, to find so many bacteriologists willing to coöperate in elucidating problems common to both.

I am, Sir, yours faithfully,

CHALMERS WATSON, M.D.

Edinburgh, July 29th, 1922.

BUTYN VERSUS COCAINE.

To the Editor of THE LANCET.

SIR,—The use of butyn as a local anæsthetic appears to have aroused interest, in more than one branch of surgery, as an alternative for cocaine.[1] Further experience convinces me that it is something more than an alternative, for its action is superior in several respects. A comparison of butyn with cocaine shows an advantage for the former in all respects. The desired effect is attained with a smaller quantity of the drug, with a quicker action, and more profound result. The accommodation is not paralysed and consequently the pupil is not dilated. Butyn does not appear to have any toxic effect, and it is never injurious to the cornea.

For the removal of foreign bodies from the cornea, a drop of 1 per cent. solution almost immediately produces anæsthesia. For cataract operation a 2 per cent. solution preceded by a tablet of adrenalin (0·0006 g.) is ideal. The absence of dilatation of the pupil justifies its use in glaucoma as an analgesic in combination with eserine or pilocarpine. For glaucoma operations it can be safely used to produce local anæsthesia. In the treatment of keratitis, in which cocaine is liable to produce corneal exfoliation, butyn can be instilled without anxiety. Operations on the muscles may be performed with infiltration anæsthesia, a 0·5 per cent. solution being employed; 1 c.cm. of the solution is used or even more in these cases, and the reports from America are highly satisfactory. For cataract operations and for iridectomy I have used a 2 per cent. solution of butyn in place of cocaine in 20 cases and have always been well satisfied with the action of the drug. In each case the instillation was preceded by a tablet of adrenalin.

For nose, throat, ear, and genito-urinary operations 2 per cent. to 5 per cent. solutions are recommended, according to the depth of the anæsthesia desired. The less toxic effects of butyn compared with cocaine enable the surgeon to use it without fear in these cases. It can be sterilised by boiling without affecting its anæsthetic qualities.

In dental surgery butyn is extensively used in America both for infiltration and conduction anæsthesia. Chlorides should not be used with butyn as they cause the latter to crystallise out of solution. No toxic effects have been observed, either in experiments on animals or in the clinical use of butyn.

In conclusion, not only in ophthalmology but also in all other branches of surgery the use of butyn appears to be co-extensive with that of cocaine. If after weighing the two drugs in the scales of experience it is found that we have a synthetic super-cocaine which renders the old and hitherto essential drug superfluous, our patriotic and social duty is obvious. For if medical science can banish cocaine from the Pharmacopœia, without loss to the healing art, a step will be taken towards the elimination of the drug-trafficker and the rescue of his victims.

I am, Sir, yours faithfully,

Bath, July 31st, 1922. W. M. BEAUMONT.

[1] British Journal of Ophthalmology, July 1922.

THE WORKS OF PURKINJE.

To the Editor of THE LANCET.

SIR,—My attention has only just been called to a letter on Medical Libraries in THE LANCET of May 6th (p. 916). The two volumes on the physiology of vision by Purkinje there mentioned by Mr. V. Plarr as being in my possession are "Beiträge zur Kenntniss des Sehens in subjektiver Hinsicht," 1823, and "Neue Beiträge zur Kenntniss des Sehens in subjektiver Hinsicht," 1825. These books are extremely rare as I am aware of only one other set, which is in the library of the Ophthalmological Society in Vienna. The librarian told me that his copies were the only ones in existence, and I was 20 years before I could obtain mine. For this reason the work of Purkinje is not sufficiently known, though his name is associated with so many physiological and anatomical facts. On account of the exceptionally fine scientific work in these volumes it would be of advantage if they could be translated into English or copied as Mr. Plarr has suggested.

I am, Sir, yours faithfully,

July 28th, 1922. F. W. EDRIDGE-GREEN.

THIRST AND RECTAL SALINES.

To the Editor of THE LANCET.

SIR,—It has struck me as a student of medicine that the administration of a solution of salt and water—roughly a teaspoonful to a pint—would probably be followed by thirst. That is generally the complaint of dehydrated patients and those who have had a general anæsthetic. A personal experiment may perhaps be of interest to your readers. I drank half a pint of saline every half-hour for five times, and the sixth glassful after an interval of an hour. Just before it was time to take the fifth glass I began to feel thirsty, and had to drink extra water before the sixth. I was more thirsty after I had stopped taking the saline about two or three hours. When we are thirsty we drink ordinary water; there does not seem to be any reason why ordinary water should not be given per rectum instead of salines, and achieve the object with much greater comfort to the patient.

I am, Sir, yours faithfully,

Edinburgh, July 28th, 1922. DOREEN STRANGER.

MANCHESTER AND SALFORD SUNDAY FUND.—The sum available this year for distribution by the committee of this Fund reached £11,924, and was distributed amongst the 20 local medical charities in amounts ranging from £3103 to the Royal Infirmary downwards. St. Mary's Hospitals received £1315, Ancoats Hospital £1278, Children's Hospital £1100, Salford Royal Hospital £1019, Royal Eye Hospital £964. The Ear Hospital received £148, the Hospital for Skin Diseases £138, and the Dental Hospital £118.

Medical News.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An ordinary Comitia was held on July 27th, the Senior Censor, Dr. Raymond Crawfurd, being in the chair, in the absence of the President. On the report of the Censors' Board the following resolutions were passed :—

1. That William Henry Starkie be declared to be no longer a Licentiate of the College ; that he forfeit all the rights and privileges of a Licentiate ; and that his name be expunged from the list of Licentiates during the pleasure of the College.

2. That John William Kynaston be declared to be no longer a Licentiate of the College ; that he forfeit all rights and privileges of a Licentiate ; and that his name be expunged from the list of Licentiates during the pleasure of the College ; but that an application for restoration of his Licence may be considered in two years from the date of the withdrawal thereof.

The following candidates, having passed the required examination, were admitted as Members :—

Drs. C. C. Beatty, H. E. A. Boldero, H. A. Boyce, N. B. Capon, F. W. M. Cunningham, J. C. Davies, O. C. M. Davis, W. S. Gross, C. H. Kellaway, C. A. Shanta, J. M. Surveyor, J. E. M. Wigley, H. G. E. Williams, and F. E. S. Willis.

Licences to practice physic were granted to 115 candidates. Diplomas were granted, jointly with the Royal College of Surgeons, in Public Health to 25 candidates, Tropical Medicine and Hygiene to 17 candidates, Psychological Medicine to 9 candidates, and Ophthalmic Medicine and Surgery to 14 candidates.—The examiners for the Murchison Memorial Scholarship recommended Arthur H. Douthwaite and Charles F. T. East as equally deserving of the scholarship.

The following College Officers, Members of Committees, and Examiners for the ensuing year were elected on the nomination of the President, Council, and Library Committee :—

Censors.—Dr. Raymond H. P. Crawfurd, Dr. Horace G. Turney, Dr. Herbert Morley Fletcher, and Lord Dawson of Penn.

Treasurer.—Sir Dyce Duckworth.

Registrar.—Dr. Joseph A. Ormerod.

Harveian Librarian.—Dr. T. H. Arnold Chaplin.

Members of the Library Committee.—Sir Norman Moore, Sir Dawson Williams, Sir James Galloway, and Dr. George F. Still.

Curators of the Museum.—Dr. John Mitchell Bruce, Sir Seymour John Sharkey, Sir Frederick W. Andrewes, and Dr. William Hunter.

Finance Committee.—Dr. Sidney P. Phillips, Dr. Arthur T. Davies, and Dr. Herbert R. Spencer.

Examiners.—Chemistry : Dr. William B. Tuck and Mr. Charles S. Gibson. Physics : Dr. Frederick Womack and Dr. Alfred H. Fison. Practical Pharmacy : Dr. Alfred E. Russell, Dr. Edward A. Cockayne, Dr. Philip Hamill, Dr. Alfred J. Clark, and Dr. Walter E. Dixon. Physiology : Dr. John B. Leathes and Dr. John Mellanby. Anatomy : Dr. Thomas B. Johnstone. Medical Anatomy and Principles and Practice of Medicine : Dr. William Aldren Turner, Dr. Herbert Morley Fletcher, Dr. John W. Carr, Dr. Joseph J. Perkins, Dr. Arthur P. Beddard, Dr. Arthur J. Hall, Sir James Purves Stewart, Dr. Robert A. Young, Dr. Charles Bolton, and Sir William H. Willcox. Midwifery and Diseases peculiar to Women : Dr. John P. Hedley, Dr. Ewen J. Maclean, Dr. Thomas G. Stevens, Dr. John D. Barris, and Mr. Harold Chapple.

Public Health.—Part I., Dr. Henry Wilson Hake. Part II., Dr. David Samuel Davies.

Tropical Medicine.—Dr. John C. Grant Ledingham (Bacteriology) and Dr. John B. Christopherson (Diseases and Hygiene of the Tropics).

Ophthalmic Medicine and Surgery.—Dr. Gordon M. Holmes.

Psychological Medicine.—Part I., Dr. Henry Devine. Part II., Dr. James Taylor and Dr. Charles H. Bond.

Dr. Lauriston Shaw was appointed to the Council in place of the late Dr. W. H. R. Rivers.—Communications were received from Mr. H. Holman Wilson asking the help of the College towards re-erecting in the church of St. Leonard's, Exeter, certain panels which formed part of the altar tomb of Dr. William Musgrave, F.R.C.P., F.R.S. This application was granted.—Dr. Dawtrey Drewitt was appointed, on the recommendation of the President, to serve on a Grand Committee to consider the commemoration of the bicentenary of the death of Sir Christopher Wren.—Permission was given to Sir Arthur Keith to photograph the portrait of Sir Thomas Browne in possession of the College.—A request from Dr. R. A. Chisolm asking that the membership, which he resigned in 1919, may be restored to him was granted.—Mr. J. C. Tomlin, K.C., was elected a Senior Standing Counsel on the nomination of the President.—A report was received from the Censors' Board concerning the Lloyd Roberts Lectureship. Referred to the lawyers for consideration.

Reports were received from the Director-General of the Medical Department of the Navy announcing the awards of the Gilbert Blane Medals to Surgeon-Commanders Robert W. B. Hall, Sheldon F. Dudley, Reginald St. G. S. Bond, and Surgeon-Lieutenant W. B. Grimwade.—Sir Frederick Andrewes was re-appointed a representative on the Executive Committee of the Imperial Cancer Research Fund and Sir William Church and Sir Thomas Barlow were re-elected as members of that body.—A report was received from the representative of the two Royal Colleges (Mr. E. Treacher Collins) on the International Congress of Ophthalmology, held at Washington in April last. It was announced that the next Congress would be held in London in 1925.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At meetings of the Comitia of the Royal College of Physicians and of the Council of the Royal College of Surgeons, on July 25th, diplomas of L.R.C.P. and M.R.C.S. were conferred upon the following 115 candidates (96 men and 19 women) who have passed the Final Examination of the Conjoint Board, and have complied with the by-laws :—

Samuel Adler, Manchester ; Nuggchatti Ananthram Aiengar, Grant Medical Coll., Bombay and Guy's ; John V. D. Allin and Geoffrey W. Ballance, Birmingham ; Francis H. Bodman, Bristol ; Philip W. Boobbyer, Oxford and St. Mary's ; Harold W. Briggs, Cambridge and St. Thomas's ; George L. Brocklehurst, St. Bart.'s ; Gwendolen M. Brown, Cambridge and Charing Cross ; Robson C. Brown, Durham ; Gladys L. Buckley, Royal Free ; Norman L. Capener, St. Bart.'s ; Madeleine H. Clarke, Royal Free and Univ. Coll. ; Eric A. Coldrey, St. Bart.'s ; Leslie B. Cole, Cambridge and St. Thomas's ; Robert H. Cooke, St. Bart.'s ; Daryll C. Corry, Univ. Coll. ; Norman McLeod Craig, Kingston and St. Bart.'s ; Patrick P. Dalton, St. Bart.'s ; Kaikhosru Ardeshir Darukhanawala, Bombay and St. Thomas's ; William A. Date, St. Mary's ; Thomas H. R. Davies, Cardiff and Univ. Coll. ; Fuad Daûdi Déjani, Beirut and London ; Harold K. Denham, Oxford and St. Bart.'s ; John B. Devine, King's Coll. ; Conor J. Donelan, St. Bart.'s ; Lawrence Dulake, King's Coll. ; Helen W. Duncan, Liverpool ; Beatrice E. Ebden, London ; Mary C. Elliott, Univ. Coll. ; Donald C. Fairbairn, St. Bart.'s ; Lawrence S. Fallis, Kingston and St. Bart.'s ; Albert R. Fox, Middlesex ; Christine P. Francis, King's Coll. ; Wilfrid F. Francis, St. Mary's ; Charles B. S. Fuller, Cambridge and St. Thomas's ; Ada Furniss, Manchester ; Herbert J. J. Garrod, Calcutta and Middlesex ; Marie L. P. Goetze, Royal Free ; Alice M. F. Goldmann, Univ. Coll. ; Samuel Gordon, Cardiff and St. Bart.'s ; Reginald Hale-White, Cambridge and Guy's ; Herbert G. Hall, Univ. Coll. ; Bernard O. Hancock, Birmingham ; Thomas H. J. Hargreaves, Charing Cross ; Muriel M. Harris, Royal Free and King's Coll. ; Sidney G. Harrison, St. Bart.'s ; Philip R. Hawe, Liverpool ; Hilda M. Haythornthwaite, Royal Free ; Ellis C. Heap, St. Thomas's ; Mohamed Mohamed Hegab, Cairo and Guy's ; Humphrey C. Hill, Oxford and London ; George H. Hogben and John P. Hosford, St. Bart.'s ; Edgar G. Housden, St. Thomas's ; Gilbert H. Howells, Cardiff and St. Thomas's ; John S. Hudson, Guy's ; Evan N. Hughes, Liverpool ; John Jackson, St. Bart.'s ; Arthur E. Jenkins, St. Thomas's ; Arthur J. Keevill, Bristol ; Mary A. Keresztes, Budapest and Royal Free ; Ahmed Mahmood Khaleel, Cairo and Middlesex ; David Levi, St. Mary's ; Simon I. Levy, Cardiff and Westminster ; Norman H. H. Longton, Liverpool ; Loudoun H. B. Macleod, Tasmania and Guy's ; Alan C. Maconie, St. Bart.'s ; Herbert H. Marsden, Liverpool ; Philip de Roos Mason and Caro Owen Minasian, St. Mary's ; Haydn J. Morris, Cardiff and Middlesex ; David C. Muir, Middlesex ; Horace A. Nathan, Charing Cross ; John Ness-Walker, Cambridge and St. Bart.'s ; Frederick G. Nicholas, Cardiff and Middlesex ; Lawrence F. O'Shaughnessy, Durham ; Harry M. Palmer, Cambridge and St. Thomas's ; David H. Patey, Middlesex ; Frank Y. Pearson, Cardiff and Univ. Coll. ; Reginald C. Peate, Middlesex ; Georges Piotrowski, Geneva ; Walter M. Ramsden, Guy's ; Harry E. K. Reynolds, Cambridge and Leeds ; Harry Richards, Guy's ; Constance E. Ridout, Royal Free and London ; Stanley D. Ricley, Madras and St. Mary's ; Bane Chalo De Silva Rupasingha, Ceylon and London ; Gladys M. Sandes, Royal Free ; Norah B. A. Sankey ; St. Mary's ; Margaret C. Scrace, Royal Free ; Cecil F. H. Sergeant, Liverpool ; Noël F. Shaw, Middlesex ; Patricia H. S. Shaw, St. Mary's ; Clifton M. Short, Guy's ; Jack Shulman, Middlesex ; Norman W. Snell, King's Coll. ; James A. Struthers and Clement Sturton, Cambridge and St. Bart.'s ; Francis B. Sudbury, Cambridge and St. Thomas's ; Maxwell H. Summers, Middlesex ; Dick B. Sutton, King's Coll. ; Harold W. Taylor, Cambridge and Guy's ; Horace R. J. Thomas, London ; Trevor M. Thomas, Cambridge and St. Bart.'s ; Harold K. Tucker, St. Bart.'s ; Haigouni Dikran Absalom Utidjian, Beyrout and Univ. Coll. ; Richard H. Wade, St. Bart.'s ; Herbert K. Wallace, Guy's ; Joseph Whitby, Middlesex ; Catherine M. Williams, St. Mary's ; Charles P. Wilson, Middlesex ; George Wilson, Charing Cross ; Donald A. Windemer, Guy's ; and J. A. Young, Kingston and St. Mary's.

Diplomas in Tropical Medicine and Hygiene were conferred upon the following 17 candidates from the London School of Tropical Medicine :—

Basil F. Beatson, Herbert C. Berlie, Nancy E. Bleakley, Charles V. Boland, Donald I. Cameron, Vicars M. Fisher, Priyahar Gupta, Spencer Hunt, Harry S. Lucraft, Gerald S. Marshall, Ludlow M. Moody, Eugene R. Kellersberger, Morris Schwartz, Max Theiler, Salvator M. Vassallo, Mahomed Yacob, and Margaret H. R. Young.

Diplomas in Ophthalmic Medicine and Surgery were conferred on the following 14 candidates :—

Dwarka Prasad Bhargava, Jamasp Cursetji Bharucha, Robert E. Collins, Eric MacAllan G. Glassford, Robert McMahon

Glynn, Norman McAlister Gregg, Abdulhusen Jivajee Kapasi, Kaikhushru Edulji Madan, Gladys H. Marchant, John S. Monro, Bapuji Phirojshaw Nanavati, Charles C. O'Malley, Stuart Scoular, and Francis J. D. Twigg.

UNIVERSITY OF EDINBURGH.—At the graduation ceremonial on July 21st the following degrees were conferred:—

DOCTOR OF MEDICINE.

•James Anderson, Rachel M. Barclay, †Leonard van Renen Becker, •Walter T. Benson, Henry C. D. Cross, Francis G. Foster, †Francis R. Fraser, Nathaniel Hirschman, George G. S. Johnston, †Archibald Langwill, •John H. Lechler (in absentia), Thomas Lindsay, Max Lipschitz, John C. Macartney, ‡James E. M'Cartney, •Peter K. M'Cowan, Anne Louisa MacDonald, •George Mackie, Alexander F. W. Millar, •George F. B. Page, Dewan Hakumat Rai (in absentia), Harold E. Rawlence (in absentia), Joan Kennedy Rose, George Stewart, Sidney J. Taylor, and •Peter Vieyra.

MASTER OF SURGERY.

‡Walter Q. Wood.

• Commended for thesis. † Highly commended for thesis. ‡ Awarded gold medal for thesis.

BACHELOR OF MEDICINE AND BACHELOR OF SURGERY.

Stuart M. Alexander, Margaret Allice, William L. Balfour, Davie Anne D. Bannerman, Francis D. M. Beaton, Margery E. Bennet, Jan Hendrik van den Berg, Elizabeth S. Blair, Victoria E. Brander, Jean T. W. Bucknell, •Ernest Bulmer, Jane G. H. Burnet, Charles W. Burns, James C. Caird, Isobel J. Callender, Ian G. Cameron, Esther J. Campbell, Grace Campbell, Helen T. Campbell, Mary C. Campbell, Elizabeth B. Clark, Frederick W. P. Cluver, George G. Cochrane, Thomas A. Cochrane, John W. P. Collier, •Jean M. T. Connochie, Harold K. Corkill, James C. B. Craig, Edward J. Crawford, Frederick G. Creaser, Margaret M. Creaser, Lilian M. Croskery, †Bruce Mackenzie Dick, Gladys H. Dodds, Carl E. Dorsch, Jessie A. P. Dower, Herbert A. Eadie, †Jessie Eeles, Edward L. Ewan, Louis Feldman, Thomas Ferguson, Helen L. M'Kay Fisher, Joseph E. Fletcher, •Carl H. Fouché, Beatrice C. Galsworthy, Hilda R. Gibbs, Edward S. Gordon, Alice J. Gray, Margaret A. Green, Hyman Greenberg, John B. Gyle, John S. Harris, James A. Hart, Hilda R. Hay, Janet M. Henderson, John M'Askill Henderson, Enid M. Hern, William N. Hood, James S. Hovell, Sheila Hunter, William M. Hyslop, Robert G. Inkster, George W. Ireland, Harold Jamieson, Eric M. Jenkins, Nora A. Jones, Elizabeth R. Kemp, Catherine G. Ketchin, Alan J. Kilgour, Isabel F. King, Noel Kretzmar, Edward G. Lawrie, •William Reginald Levie, Samuel Lipetz, Johannes Hendrik Loots, Andries Johannes Lübbe, Max G. Lucas, Simon L. Lucas, Kenneth Lumsden, Betty Macdonald, †David T. M'Donald, Donald Macdonald, †John R. M'Donald, •Andrew M'Farlane, Robert A. C. M'Intosh, Donald P. MacIver, Donald F. MacKenzie, James F. Mackie, Kenneth D. Mackintosh, Robert A. MacNab, Kenneth A. Macrae, •Alexander M. Marr, Joseph Martin, •Thomas M'Walter Millar, John C. Moir, Janette C. Morrison, Allan H. Mowat, Jessie E. M. Munro, Ronald Munro, John K. Murray, Dorothea M. Norwell, Jessie R. H. O'Sullivan, Dorothy M. Patrick, Hyman Penn, Dorothy G. E. Potter, Cornelius M. Rautenbach, •Frederick W. Rawlings, †William M. Robb, Isabel M. Roberton, John D. Robertson, Robina Antoinette M'Farlane Scott, David M. Scrimgeour, Marjorie K. Semple, Samuel Sieff, •Thomas Skene, Arthur G. Smith, Marjorie V. B. Smith, Eva Stewart, Handley G. Stockley, Jessie W. Strang, May D. Stranger, Ian D. Stronach, Peter W. Tait, Ruth M. A. Tait, Isabella Taylor, Florence L. Telfer, Robert V. Thomas, Charles M. Thompson, Colin B. Thomson, James Thomson, Muriel J Thomson, Henry G. Triay, Annie R. Turnbull, Kathleen M. Turner, John Waiggowsky, Georgina Waters, •Annie E. Webster, Christian Mary B. Welsh, Winifred Wight, Doris S. Williams, Herbert H. Wright, and Archibald D. M. Young.

• Second-class honours. † First-class honours.

DIPLOMA IN PUBLIC HEALTH.

George G. Allan, Dora W. Gerrard, Mary H. M. Gordon, Margaret Gray (in absentia), Helen R. T. Hood, John S. Macbeth, Agnes MacGregor, Florence E. M'Kenzie (in absentia), Janetta J. Powrie, Margaret M. Proudfoot, George Stewart, and James D. Stewart.

The following awards were also made:—Thesis Gold Medallists: James E. M'Cartney and Walter Q. Wood. Cameron Prize in Practical Therapeutics: Frederick Gowland Hopkins. Syme Surgical Fellowship: Norman M'Omish Dott. Gunning Victoria Jubilee Prize in Pathology: James E. M'Cartney. Gunning Victoria Jubilee Prize in Physiology: Eric H. Ponder. Ettles Scholarship and Leslie Gold Medal: Joseph O. Kelly. Allan Fellowship in Clinical Medicine and Clinical Surgery: Bruce M. Dick. Stark Scholarship in Clinical Medicine: Adam C. White. M'Cosh Graduate's and Medical Bursaries: Harold K. Corkill. Beaney Prize in Anatomy and Surgery: Bruce M. Dick and Thomas M'Walter Millar (equal). Mouat Scholarship in the Practice of Physic and Conan Doyle Prize: Carl H. Fouché. Annandale Gold Medal in Clinical Surgery: Ian G. Cameron. Buchanan Scholarship in Gynæcology: Bruce M. Dick. James Scott Scholarship in Midwifery: Florence L. Telfer. Scottish Association for Medical Education of Women Prize: Jessie Eeles. Dorothy Gilfillan Memorial Prize: Jean M. T. Connochie. Wellcome Medals in the History of Medicine: Gold Medal, Thomas Ferguson; Silver Medal, Frances A. Redhead. Pattison Prize in Clinical Surgery: David Grieve. Wightman Prize in Clinical Medicine: William R. Levie. Cunningham Memorial Medal and Prize in Anatomy: Sidney Elisabeth Croskery. Whiteside Bruce Bursary: George Brown.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—The following candidates have passed the Final Dental Examination, and have been granted the diploma L.D.S. R.C.S. Ed.:—

Archibald McNab, Harold E. Coltman, James Johnstone, Johan D. Beyers, George W. Casson, Rudolph M. Tren, William A. McKee Gibson, Meyers Fouche, John C. Moyes, Harry J. Henderson, Andrian Kleinschmidt, David M. R. Crombie, Thomas B. Gregor, George Lindsay, Hilda M. MacDonald, and Robert D. Kinnear.

Frederic L. Jones, Jacobus Myburgh Moll, and Peter B. Laurenson passed in the subject of Medicine and Surgery.

HOLIDAY MEALS FOR NECESSITOUS CHILDREN.—The London County Council has decided to discontinue meals for necessitous children on non-school days.

BRISTOL ROYAL INFIRMARY.—At a meeting of the Election Committee held at the infirmary on July 25th Dr. R. S. S. Statham was appointed obstetrician to the Bristol Royal Infirmary in place of Dr. Walter C. Swayne.

MEASLES EPIDEMIC IN MANCHESTER.—Last week was the tenth week of the present epidemic and there does not seem any sign of its diminution. During the week ending July 22nd there were reported 1043 cases with 20 deaths. The number of new cases is about the weekly average, but the number of deaths is increased.

HOSPITAL SUNDAY FUND AWARDS.—At the annual meeting of the Hospital Sunday Fund, held on July 26th, the Distribution Committee reported that the Fund amounted to £95,000, which would be distributed among 220 institutions. Seven and a half per cent. of the total sum available was retained for the purchase of surgical appliances during the year and 2½ per cent. for district nursing associations. Sir William Church said that the total sum collected was only £5000 less than last year, which in view of the coincident Combined Appeal, was a most satisfactory result.

LONDON (R.F.H.) SCHOOL OF MEDICINE FOR WOMEN. The following scholarships have been awarded for the session 1922–23: Sir Owen Roberts' Memorial Scholarship (£75 for 4 years): Miss D. Stewart (L.S.M.W.); St. Dunstan's Medical Exhibition (£60 for 3 or 5 years): Miss M. H. Lester (Christ's Hospital); Mabel Sharman-Crawford Scholarship (£20 for 4 years): Miss H. Newman (L.S.M.W.); Isabel Thorne Scholarship, £30: Miss E. L. Hutton (Clergy Daughters' School, Casterton); Ellen Walker Bursary (£25 for 2 years): Miss V. A. Roberts (L.S.M.W.); Fanny Butler Scholarship (£14 10s. for 2 years): Miss E. M. Oswald (Ridgelands College, Wimbledon).

HOSPITALS OF LONDON COMBINED APPEAL: INTERIM DISTRIBUTION.—At a special meeting of the President and Council of King Edward's Hospital Fund for London, held on August 1st, Sir Alan Anderson said that £271,000 was actually in hand in response to the Combined Appeal: including money advised but not yet received, it was hoped that the £300,000 expected before July 31st had been exceeded. The appeal had already succeeded in raising as much "new money" as the maximum amount of Government money at present available for London hospitals, and those concerned had been informed that the Government could no longer give pound for pound to balance new money contributed by the public.

A resolution was passed on the recommendation of the Management Committee, that at some date between August 1st and 15th, King Edward's Hospital Fund should pay to the co-operating hospitals cheques on account amounting in all to £150,000, and that a further payment be made to each hospital as soon as sufficient further information became available.

THE CHOLERA EPIDEMIC IN RUSSIA.—Detailed and most encouraging statistics concerning this epidemic are furnished in a cable recently received at the London Office (67, Eaton-square, S.W. 1.) of the American Relief Administration. Up to the end of June only 11,480 cases have been reported in all Russia. Of these, 5431 are in the Ukraine, and 1365 are of refugees removed from trains or boats. While these figures are probably incomplete, the medical division of the American Relief Administration believes that they show encouraging results of an extended inoculation campaign. This optimism would seem justified in view of the official Soviet figures for 1921, when the number of cases reported up to July was 74,000, and the total for the season ran up to 126,760. Probably the most encouraging aspect of the present year's statistics is the constant decrease of the epidemic shown during the months when usually cholera is on the increase, this decrease running directly parallel with the American inoculation campaign. In the Ukraine, where these inoculation operations began much later, the epidemics are still severe, but with four medical directors now operating from Minsk, Kiev, Odessa, and Kharkoff, it is expected that the results of the American work here will be as effective and satisfactory as in the Volga Valley.

Parliamentary Intelligence.

HOUSE OF LORDS.

THURSDAY, JULY 27TH.

THE Criminal Law Amendment Bill was read a second time.

HOUSE OF COMMONS.

MONDAY, JULY 24TH.

Import of Medical Instruments.

Mr. RAFFAN asked the President of the Board of Trade whether he had received the report of the committee appointed by him to deal with the application for a further duty of 33⅓ per cent. upon optical and scientific instruments; whether the terms of reference to this committee included the consideration of employment in the making of dental, surgical, and medical instruments; if so, whether he could say if evidence on this point was submitted to the committee; and whether, what was the value of imports of dental, surgical, and medical instruments during the six months ending June, 1922, and similar figures for the same period in 1921.—Mr. BALDWIN replied: The answer to the first part of the question is in the negative. The complaint referred to the committee does not relate to dental, surgical, and medical instruments other than a very limited number, which are included in the lists of optical elements and of optical and scientific instruments issued by the Board of Trade under Section 1 (5) of the Act. These particular goods are products of industries covering a much wider range, as to employment in which the committee were specifically directed to report, and their report when presented will no doubt deal with this aspect of the matter. The declared value of dental, surgical, medical, and veterinary instruments (except optical), registered as imported into the United Kingdom during the six months ending June 30th, 1922, was £12,427. The corresponding value for the six months ending June 30th, 1921, was £20,592.

TUESDAY, JULY 25TH.

Criminal Law Amendment Bill.

This Bill was considered on Report.

Mr. MACQUISTEN moved to insert a new clause providing that the age of consent for males should be the same as for females. He said that many adolescent youths were initiated into vice by women much older than themselves, and, unless they were prevented, such boys would afterwards prey upon young girls with the result that the purpose of the Bill would be defeated.

Mr. D. HERBERT seconded the amendment.

Mr. SHORTT (Home Secretary) resisted the amendment and expressed the hope that the House would not jeopardise the rest of the Bill for the sake of this proposal. It might be that it would be perfectly logical to protect the boy as well as the girl, but he did not think anyone would suggest that boys ran anything like the danger from vicious women that young girls ran from vicious men.

The amendment was rejected by 191 votes to 81.

Mr. RAWLINSON moved the following new clause:—"Nothing in this act shall apply to a case where it is shown that the young person under the age of 16 has been leading the life of a prostitute."

Viscount CURZON seconded.

Mr. SHORTT said he hoped the House would not weaken the Bill by passing the amendment. They could only stop child prostitution by stopping the clientèle, and they could only stop the clientèle by making it so dangerous to go with the child that any man addicted to these things would take care that he confined himself to mature women.

Mr. RAWLINSON said that the Bill was creating a new offence by raising the age in which acts of familiarity came within the category of indecent assaults, and that would give scope for the levy of blackmail by young prostitutes. It was against this that the clause was directed.

After some discussion the new clause was negatived by 177 votes to 78.

On Clause 2 Sir G. HAMILTON moved to insert at the end of the clause the words "Provided that in the case of a man of 23 years of age or under the presence of reasonable cause to believe that the girl was over 16 years of age shall be a valid defence on the first occasion on which he is charged with an offence under this section."

Mr. SHORTT said that he understood that this amendment had been agreed to by two bodies of members in Committee, and on behalf of the Government he was prepared to accept it.

On a division the amendment was carried by 99 votes to 65.

WEDNESDAY, JULY 26th.

Milk Adulteration Statistics.

Mr. MYERS asked the Minister of Health the number of prosecutions instituted in England and Wales in respect of the sale of milk for the last complete year for which figures were available, with the number of cases in which added adulteration was the nature of the charge, and the number of cases in which the milk was below the recognised percentage in fat contents, with the corresponding figures for the year 1913.—Sir A. MOND replied: I regret that I have no figures available as to the number of prosecutions instituted in England and Wales in respect of the adulteration of milk. In 1921 the number of samples of milk certified as adulterated or not up to standard was 5290 out of 61,439 samples taken, compared with 5533 out of 52,304 in 1913. I am unable to give separate figures for the different forms of adulteration.

The Use of Cocaine.

Dr. M'DONALD asked the Minister of Health if he would now supply the House with the answers received in reply to his inquiries forwarded to the medical and dental professions concerning the necessity or otherwise of the use of cocaine.—Sir A. MOND replied: I am satisfied from inquiries that have been made that cocaine is essential to the medical profession, particularly in ophthalmic surgery and laryngology. As regards dental surgery, although dental surgeons are not unanimous, there are many who regard cocaine as essential for certain dental operations.

The Sale of Arsenic.

Dr. M'DONALD asked the Minister of Health if, in view of the fact that large quantities of arsenic could be obtained from chemists by individuals merely signing a poison book, he would take steps to discontinue this practice.—Sir A. MOND replied: The sale of arsenic is governed by Sections 1 and 2 of the Arsenic Act, 1851, and by Section 17 of the Pharmacy Act, 1868. It would require further legislation, which will be considered, to deal with the point raised by the hon. Member.

Voluntary Boarders in Mental Hospitals.

Mr. ROBERT RICHARDSON asked the Minister of Health how many voluntary boarders entered licensed houses and registered hospitals, respectively, in England and Wales during the year 1921; how many left of their own accord in each case without being certified; and whether any protection was afforded by the Lunacy Act for voluntary boarders in registered hospitals against the risk of finding themselves certified without their knowledge of such certification.—Sir A. MOND replied: 315 voluntary boarders entered licensed houses and 330 entered registered hospitals in 1921. During that year 194 voluntary boarders left licensed houses and 227 left registered hospitals of their own accord. Unless a patient is suffering from mental disorder of so acute a character that he is unable to appreciate what is taking place, it is practically impossible for him to be certified without his knowledge, as the hon. Member will see by referring to the procedure laid down by Sections 4, 8, and 28 of the Lunacy Act, 1890.

Local Conferences on Smoke Abatement.

Sir WALTER DE FRECE asked the Minister of Health whether his attention had been called to the movement in favour of holding local conferences of all bodies interested in the question of smoke abatement; and whether he would suggest to the town councils of industrial districts the desirability of copying the example just set in this respect by the mayor of Oldham.—Sir A. MOND replied: I am aware of the conference proposed to be held at Oldham and have arranged that a representative of the Ministry shall attend. I shall be glad to encourage conferences on this subject where they are likely to serve a useful purpose.

Military Small-pox Statistics.

Mr. MILLS asked the Secretary of State for War what was the reason for the delay in publishing the statistics of small-pox cases and deaths recorded in the British Army during the years of the war, seeing that three and a half years had elapsed since the signing of the armistice, and a special department had been at work on the Army disease statistics during that time.—Sir L. WORTHINGTON EVANS replied: The delay is due to the volume of work involved. The statistics have to be compiled from the hospital cards on which the individual cases were recorded, and the number of such cards to be dealt with is about 30 millions.

Legitimation Bill.

Mr. SHORTT (Home Secretary) presented a Bill to provide for the legitimation of illegitimate persons by the subsequent marriage of their parents. The Bill was read a first time.

Experiments on Living Animals.

Sir JOHN BAIRD (Under Secretary for the Home Office) moved an address for a return showing the number of experiments on living animals during the year 1921 under

licences granted under the Act 39 and 40 Vic., c. 77' distinguishing the nature of the experiments (in continuation of Parliamentary Paper, No. 182, of Session 1921).

THURSDAY, JULY 27TH.

Alteration of Coroner's Certificate.

Colonel BURN asked the Secretary of State for the Home Department whether there was any power to correct a register in which the cause of a woman's death was given by a coroner's court as due to hæmorrhage from a wound in the throat, her husband being committed for trial on a charge of wilful murder by the local magistrate but acquitted at the assizes, in view of the injury to an individual who had been proved innocent by the verdict of a jury.—Sir A. MOND replied: Under Section 36 (4) of the Births and Deaths Registration Act, 1874, an error of fact or substance (other than an error relating to the cause of death), in the information given by the coroner's certificate concerning a dead body upon which an inquest has been held may be corrected by the Registrar on receipt of a certificate from the coroner that such error exists.

Home for Paralysed Soldiers at Clapham.

Mr. ORMSBY-GORE asked the Minister of Pensions whether it was proposed to close the Lonsdale House, Poynders-road, Clapham; whether he was aware that this home provided for the care of 32 permanently paralysed soldiers incurably paralysed by wounds received in the great war who had lived together in this house for nearly four years; that the lease of the house had been given free of charge for 14 years, and all rates and taxes guaranteed by voluntary subscription; whether it was now proposed to break up this community and scatter the paralysed patients among various wards of different hospitals and homes; if so, whether on grounds of humanity and in response to the unanimous wishes of the patients, he would reconsider such a decision, if any; and whether, before any action was taken, he would receive a deputation of Members of Parliament and others interested in maintaining the continued existence of this home.—Mr. MACPHERSON replied: I am glad to be able to assure my hon. and gallant friend that this hospital is not being closed. Arrangements are being made under which my department will have the use of it on a capitation basis. Perhaps I may be permitted to express my sincere appreciation of the generous and helpful attitude taken by those interested in this home.

FRIDAY, JULY 28TH.

The Starvation Death Lists.

Mrs. WINTRINGHAM asked the Minister of Health whether his attention had been drawn to the Reports of the Poor-law Commission, published in 1909, and Dr. McVail's evidence, showing the difficulties of obtaining necessary medical and other Poor-law relief in some unions; and whether he would state the number of children in the Starvation Death Lists from 1910 to 1918 (after which the lists were discontinued), inclusive, and also the number of children in the Starvation Death Lists for 1914.—Sir A. MOND replied: I am aware of the reports and evidence referred to. The number of children under 16 years of age in whose cases a coroner's jury returned a verdict of death from starvation or death accelerated by privation in the years 1910 to 1918 was 54. The number of such cases in the year 1914 was 6.

MONDAY, JULY 31ST.

Famine in Russia still Acute.

Mr. LEONARD LYLE asked the Under Secretary of State for Foreign Affairs what was the nature of the latest reports received by the Foreign Office with regard to harvest prospects in Russia; whether there was still acute famine and, if so, where; whether there was any serious drought this year; whether funds were still needed for relief work; and whether any nations or authorities had, in view of the improved outlook, discountenanced further public collections in aid of Russian famine victims.—Mr. HARMSWORTH replied: The latest reports from Moscow indicate that the harvest prospects are good, but acute famine still exists in the Ukraine. So far as H.M. Government are aware, the answer to the third part of the question is in the negative. Owing to the smallness of the area sown, the harvest, even if it fulfils all expectations, will only provide the barest ration, and distress is likely to arise in certain localities, as well as in the Ukraine. In these circumstances more funds will in all probability be required. With regard to the last part of the question, the answer is in the negative, but we understand that certain of the relief bodies are considering the question of readjusting their organisations with a view to concentrate on the particular areas likely to be affected by famine early next year.

Sale of Arsenic and Strychnine.

Sir FORTESCUE FLANNERY asked the Minister of Health if his attention had been called to the suggestion of one of His Majesty's judges that poisons in the form of powder, such as arsenic and strychnine, should be manufactured and sold only with distinctive colouring, and that white strychnine or arsenic powders should be no longer permitted; and whether the Government would introduce legislation to give effect to these suggestions.—Mr. SHORTT replied: Yes, Sir; and as I stated in reply to a question on the same subject on May 23rd, inquiries are being made as to the practicability of employing distinctive colours for poisons. The investigation is not yet complete.

Dilapidated Houses.

Major BARNES asked the Minister of Health the total number of houses required to replace other houses which, although they could not at present be regarded as unfit for human habitation, fell definitely below a reasonable standard, as given by the local authorities under Section II. (e) of the Form of Survey under The Housing, Town Planning, &c., Act, 1919.—Sir A. MOND replied: The total number of houses estimated by local authorities as being required under the section of the survey referred to was 104,442.

TUESDAY, AUGUST 1ST.

Prison Reform.

Sir THOMAS BRAMSDON asked the Secretary of State for the Home Department whether, in view of the urgent need and insistent public demand for an inquiry into the prison system and the administration of His Majesty's prisons and Borstal institutions, he would consider the appointment of a thoroughly representative Royal Commission at an early date for this purpose.—Mr. SHORTT replied: The matter is under consideration and I hope to come to a decision shortly.

Birth Control Literature.

Mr. HAILWOOD asked the Secretary of State for the Home Department what steps, in the way of criminal proceedings, he proposed to take in order to check the seriously increasing output of obscene literature having for its object the prevention of conception.

Mr. HAILWOOD also asked the Prime Minister whether the Government intended to introduce legislation on the lines of the French law of 1920, making it a punishable offence to publish or distribute books or pamphlets advocating or teaching the prevention of conception or offering for sale or advertising the sale of articles designed for the like purpose.—Mr. SHORTT replied: It is the duty of the police to take proceedings in any case where books of an obscene character are being circulated, but it cannot be assumed that a court would hold a book to be obscene merely because it deals with the subject referred to. There is no present intention of introducing legislation.

School Feeding of Necessitous Children.

Mr. TREVELYAN THOMSON asked the President of the Board of Education whether in those districts where it could be shown that, owing to continued distress caused by prolonged unemployment, the number of children who, on account of lack of food, were unable to take full advantage of the educational training provided was greater than last year, he would, in those districts, consent to a smaller proportionate reduction on their last year's expenditure on school feeding being made than in districts where unemployment was not so pronounced.—Mr. FISHER replied: In allocating the limited sum placed at their disposal by Parliament for aiding the provision of meals by local education authorities the Board will have regard to all the relevant circumstances of each area, including the extent and incidence of unemployment, subject always to observance of the principle that it is not proper for a local education authority to incur expenditure on the provision of meals out of the education rate and with the aid of education grants in order to relieve destitution.

Suicide and Insanity among Prisoners.

Lord HENRY CAVENDISH-BENTINCK asked the Secretary of State for the Home Department whether, in view of the fact that there was among persons admitted to prisons, an abnormally high percentage of persons prone to insanity and suicide, he would take steps to ascertain whether the present conditions of prison life were suitable to the mental constitution of these persons and not calculated to aggravate these tendencies.

Lord HENRY CAVENDISH-BENTINCK also asked the Under Secretary of State for Foreign Affairs whether he would take steps to appoint an independent commission to inquire whether the suicide-rate among prisoners was or was not higher than among the ordinary population within the same periods of age.—Mr. SHORTT replied: In the event of a general inquiry into the prison system, the points referred to by the noble lord will be among the matters for consideration.

Milk and Dairies Bill.

On the motion for the third reading of the Milk and Dairies Bill, Sir A. MOND said that the Bill would come into operation in September, 1925.—The Bill was read a third time.

Appointments.

CHEESMAN, J. E., L.S.A. Lond., has been appointed Assistant Medical Officer of Health and Assistant Tuberculosis Officer, Barrow-in-Furness.

FURNISS, ADA, M.R.C.S., L.R.C.P. Lond., Assistant Medical Officer for Children to the St. Mary's Hospitals for Women and Children, Manchester.

MACPHERSON, J., F.R.C.S.E., Resident Surgical Officer, Preston Royal Infirmary.

MUIR, W. A., M.D. Glasg., D.P.H., Medical Officer of Health for Gillingham, Kent.

RITCHIE, W., D.Sc., Lecturer in Biology, Technical College, Bradford.

TOLMIE, J. P., L.R.C.P. & S. Edin., L.R.F.P.S. Glasg., Certifying Surgeon under the Factory and Workshop Acts for the Stornoway District.

Vacancies.

For further information refer to the advertisement columns.

Belgrave Hospital for Children, Clapham-road, S.W.—H.S. £100.
Bognor Urban District.—M.O.H., &c. £200.
Brighton, Royal Sussex County Hospital.—H.P. £175.
Bristol, Cossham Memorial Hospital, Kingswood.—H.S.
Bristol Royal Infirmary.—Dental H.S. £156.
Cardiff, King Edward VII. Hospital.—H.S. £150.
Chester Royal Infirmary.—Asst. H.S. £150.
Dreadnought Hospital, Greenwich.—H.P. £150.
Durham County and Sunderland Eye Infirmary.—S.
Gloucestershire Royal Infirmary.—Asst. H.S. £150.
Haverhill Urban District Council, &c.—M.O.H. £700.
Huddersfield County Borough.—Asst. M.O.H. £500.
Huddersfield Royal Infirmary.—Sen. H.S. £250.
Hull Royal Infirmary.—Asst. H.S. £150.
Infants Hospital, Vincent-square, Westminster.—Asst. P. Anæsthetist, Radiographer.
Kesteven County Asylum, Sleaford, Lincs.—Med. Supt. £800.
Leeds Township Infirmary.—Asst. M.O. £380.
Leeds University.—Lecturer in Bacteriology. £500. Also Demonstrator in Pathology. £250.
Leicester, City Mental Hospital, Humberstone.—Asst. M.O. £600.
Liverpool Royal Southern Hospital.—Two H.P.'s and three H.S.'s. Each £100. Res. Cas. O. £150. Also Pathologist.
Maudsley Hospital, Denmark Hill, S.E.—Deputy Med. Supt. and Sen. Asst. M.O. £817 and £643 respectively.
Miller General Hospital for South-East London, Greenwich-road, S.E.—Sen. Res. M.O. £350. Also H.P. and H.S. Each £150.
Newport, Mon., Royal Gwent Hospital.—H.S. £180.
Northumberland Mental Hospital, Morpeth.—Asst. M.O. £400.
Rotherham Hospital and Dispensary.—Jun .H.S. £150.
Royal Free Hospital, Gray's Inn-road, W.C. 1.—M.O. for Electro-Therapeutic Dept. £50.
St. Mary's Hospital, Paddington, W.—Med. Supt. £350.
South-Eastern Hospital for Children, Sydenham, S.E.—Res. M.O. £100.
Virginia Water, Surrey, Holloway Sanatorium.—Jun. Asst. M.O. £400.
Warrington Infirmary and Dispensary.—Jun. H.S. £200.
West Bromwich and District Hospital.—Res. Asst. H.S. £180.
West End Hospital for Nervous Diseases, Welbeck-street, W. 7.—Hon. M.O. for Electrical Dept.

The Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Blandford.

Births, Marriages, and Deaths.

BIRTHS.

GILLIATT.—On July 30th, at Wimpole-street, W. 1, the wife of W. Gilliatt, F.R.C.S., of a son.

SAUNDERS.—On July 25th, at Moorfield-road, Portland, the wife of Dr. M. J. Saunders, of a daughter.

DEATHS.

HARDWICK.—On July 24th, at St. Bartholomew's Hospital, Frederick Septimus Hardwick, M.D., of "Purlands," Charing, Kent, aged 69.

HARRIES.—On July 27th, after a brief illness, Arthur John Harries, M.D., of 30, St. James's-square, Pall Mall, S.W., aged 65.

MCVEAN.—On July 21st, at Woodlands, Little Baddow, Essex, Captain Norman Neil George Cowan McVean (late I.M.S.), aged 42.

RANSOME.—On July 25th, at Sunnyhurst, Portchester-road, Bournemouth, Arthur Ransome, M.D., M.A. Cantab., F.R.C.P., F.R.S., aged 88.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

A VALE OF CLWYD HOSPITAL.—Some disappointment is recorded from the Vale of Clwyd at the failure of negotiations for a joint hospital for Abergele, Prestatyn, Denbigh, and St. Asaph. The St. Asaph Union Committee are not at present prepared to adapt their hospital to the needs of such a large district.

Notes, Short Comments, and Answers to Correspondents.

THE HOT OPERATING THEATRE.

BY R. P. ROWLANDS, M.S. LOND., F.R.C.S. ENG.,
SURGEON TO GUY'S HOSPITAL, LONDON.

THE object of this brief communication is to suggest that it is unnecessary, and even harmful, to make the operating theatre hot and stuffy. My experience, during many years, has convinced me that the ideal theatre should be kept at a temperature of about 65° F., well ventilated, and devoid of an excess of moisture. Most operating theatres are kept at a much higher temperature, and many are so stuffy and moist that it is difficult to do the best work in them. It is, of course, known that a stuffy, moist atmosphere adds seriously to the bad and unpleasant effects of excessive heat. Let us discuss this important subject from the point of view of the interests of (*a*) the patient, and (*b*) the surgeon and his assistants.

(*a*) *Effect of Excessive Heat on the Patient.*

The theatre is chiefly for the patient, and it has become a tradition that it must be kept hot in his interest. Fresh air is feared because of the dust it may carry into the wound, and the vapour of one or more sterilisers is too often allowed to saturate the air with moisture. Are such conditions to the advantage of the patient? It is, of course, admitted that he must be kept warm so that he may not suffer unduly from shock, but this ideal is attained, in the large majority of operations, by keeping him well and warmly clothed and by carefully avoiding exposure of any part of the body except the wound, the rest being covered with dry, sterile towels which prevent unnecessary radiation, convection, and evaporation from the surface of the body. For very prolonged operations, which should be rare, it may be necessary to heat the table also, due care being taken not to burn the patient.

When the theatre is unduly hot and stuffy my experience is that shock is more severe, and the patient perspires so freely that he and his clothing are often drenched. This great loss of liquid lowers the circulation and general vitality so that saline axillary infusions have often to be given during and after the operation to make up the deficiency. Under more normal conditions a saline enema after the operation is sufficient. Many years ago I was considerably surprised to find that collapsed patients needing urgent operations carried out in their own homes, which could not be heated to the temperature commonly prevailing in our operating theatres, did at least as well as those operated upon in the theatres. These observations made me think that we might be too infatuated with the hot theatre and led me to try reducing the temperature of my own, with great advantage to the patients.

Again, it does not seem reasonable to move the patient from a cool ward into a theatre about 20° warmer, and then back again—while he is still unconscious and suffering from shock—through cold corridors, into the lower temperature. It is probable that the risk of pulmonary complications is thereby increased.

(*b*) *Effect of Excessive Heat on the Surgeon and his Assistants.*

It is a matter of common knowledge that excessive heat is detrimental to good and expeditious work. This is confirmed by the researches of Prof. Leonard Hill and others investigating the causes of industrial fatigue. They prove that the capacity for work rapidly decreases with a temperature rising above 65° F. and that a vitiated atmosphere, laden with moisture, adds to the bad effect of heat. A surgeon and his assistants, working under such conditions for hours on end, cannot give their best work, however anxious they may be to do so. The very endeavour to do the best under these bad conditions adds to the strain, always great, which has been accentuated by the multiplication and increasing extent and complexity of modern operations. The headache and fatigue, commonly experienced after a long day in the operating theatre, are chiefly due to the heat and bad conditions, and can be largely avoided by improving these conditions, as I know from experience. It is not really necessary for the surgeon to be bathed in perspiration while he is doing his work. Moreover, some of the sweat may infect the wound.

It is not uncommon to see nurses and students faint during their first experience of these hot theatres. They gradually become acclimatised, but also become anæmic, and drift into poor health if they have to work for long under these conditions. Unfortunately, some of the leading surgeons of

the past decade were, in all good faith, powerful advocates of the hot theatre and seemed to enjoy it. Their example has been, and still is, too slavishly followed, so that the absolute need of a high temperature has become a hallowed tradition which is very difficult to destroy. From an economical point of view, unnecessary expense is incurred in providing the means of keeping theatres excessively hot and ill-ventilated. It is impressed on the architect that a high temperature has to be easily raised and he spends much time and money in making arrangements to meet this requirement.

Personally, I loathe excessive heat and abhor a stuffy atmosphere, and I never willingly operate in an ill-ventilated or moist theatre at a temperature above 65° F., for I believe that such abnormal conditions are bad for the patient, the surgeon and his assistants, and very detrimental to the best surgery.

INDIAN OFFICIAL MEDICAL REPORTS.

III.—PUBLIC HEALTH IN THE PUNJAB.[1]

THE population of this province, according to the census of 1911, was 19,337,146, and the vital statistics have been calculated on this basis for the year 1920. According to a rough estimate of the actual population in this year, it has increased to 20,713,647, the growth having taken place in all districts except Gurgaon, Simla, and Dera Ghazi Khan; the ratios must therefore be taken with some qualification.

Vital Statistics.

The birth-rate was 42·9, exactly the same as in the quinquennium 1915–19; and the death-rate 28·6, a great improvement on the quinquennial average of 43·0 per 1000. The birth-rate varied from 21·8 in the Simla district and 27·6 in Dera Ghazi Khan to 51·8 in Lyallpur and 53·0 in Montgomery. Lieut.-Colonel W. H. C. Forster, I.M.S., the Sanitary Commissioner, who presents this report, considers the ratio to be satisfactory, as showing a gradual return to normal conditions after the ravages of war and pestilence. In accordance with the biological theory of reaction, it should steadily increase to a figure in excess of pre-war rates. The province has a higher ratio than any other in India, the Central Provinces coming next with 39·17, and Madras being lowest with 28·42 per 1000. The death-rate (28·6) was lower than that of the adjoining United Provinces (37·23), but higher than in the (also adjoining) North-West Frontier Province (23·36), in Burma (26·44), and in Madras (21·87). In Dera Ghazi Khan district the mortality is returned as only 18·6, and in Sheikhupura (Lahore) as 21·6; while in Ambala, Karnal, and Simla the ratios were 46·4, 48·4, and 55·3 respectively. The infantile mortality ratio—that is, the death-rate among children under 1 year of age—was 186·32 for males and 178·65 for females, as compared with 189·33 and 188·04 for the preceding year.

Epidemic Diseases.

The province was practically free from cholera except in the third quarter of the year; there were only 138 deaths (0·01 per 1000), compared with 0·44 in 1919, and 0·26, the average for the preceding five years; 63 of these deaths were directly due to importation of infection from the pilgrimage centre at Hardwar.

Small-pox caused 9319 deaths (0·48 per 1000), in continuation of the epidemic of the previous year. It reached its maximum in May, when 1426 deaths were registered. In Montgomery district the mortality from this cause was 3·92 per 1000. In Rohtak and Kangra only 0·01. The total deaths in this epidemic (1919–20) numbered 24,684. The vaccination staff has been increased, and Colonel Forster compares the mortality of the visitation in 1912–13 (when the deaths numbered 30,339 and 38,687 in the two years) with that of 1919–20 (with 15,365 and 9319 deaths), showing what can be done by instituting a rigorous campaign at the outset. Plague caused 7972 deaths (0·3 per 1000), compared with 12,683 in the previous year. At Gujranwala there were 1565 deaths (2·6 per 1000), and at Attock 1402 deaths (2·7 per 1000). The pneumonic type was practically absent, and the mildness of the epidemic was chiefly attributable to a comparatively weak monsoon, producing unfavourable conditions for mosquito breeding, and to the preventive measures that were adopted. The type was mostly bubonic. "Barium carbonate, the new rat poison, proved its superiority to the old rat poison, especially when combined with smoking and trapping. . . . Apathy and opposition are gradually disappearing, and the people generally are beginning to see the value of the measures."

The mortality from "fevers" (371,432 deaths) was 19·21 per 1000, compared with 18·88 in the preceding year and 29·20 for the quinquennium. The highest mortality was registered in the districts of Karnal (38·42) and Simla (34·14). In the three large cities of Lahore, Amritsar, and Multan, the ratios were 18·26, 16·99, and 15·57, these being much below the respective quinquennial averages of 24·59, 22·96, and 21·85. Influenza was prevalent at Simla (1045 cases, mostly in the first half of the year, with 186 deaths), and in Muzaffagarh district (952 cases with 323 deaths). Relapsing fever was epidemic in a number of villages in Hissar, Karnal, and Ambala districts in the first half of the year; and in the latter part 19 cases were diagnosed in Simla. The first source of introduction was not traced, but in November and December infection was brought in from the neighbouring Hill States. The prevalent sickness was at first thought to be influenza, but investigation showed that a large part of the Simla Hill States had been infected with relapsing fever, dating from November, 1919, prevalent throughout the year, but especially in July and August, and that the mortality was high. It is chiefly the poorer classes that are affected. Novarsenobillon in a dose of 0·3 g. has been found to be a specific. The intravenous route is the most efficacious, but intramuscular injections have given excellent results. No doubt "malaria" that has proved intractable to quinine has really been relapsing fever in very many cases. Two assistant surgeons were placed on special duty to inquire into and deal with the matter generally.

Nineteen cases of enteric fever were recorded in Simla itself during the year, six occurring among the European population. The deaths are not stated. In Rawal Pindi city there were 45 deaths from this cause. The number of cases is not stated. Dysentery and diarrhœa caused a mortality of 0·47 per 1000 in the province, compared with the quinquennial average of 0·65. In Rawal Pindi and Simla the ratios were 2·89 and 1·80 respectively. Respiratory diseases caused 52,770 deaths in the province, giving a ratio of 2·73 per 1000, largely in excess of the previous year (0·77) and of the quinquennium (0·23). In Simla district the ratio was 11·41, and in Ambala as much as 13·89; while at Montgomery, Muzaffargarh, and Dera Ghazi Khan the mortality was only 0·30, 0·32, and 0·36 respectively. At the Kasauli Pasteur Institute 2031 patients underwent anti-rabic treatment, as compared with 1810 in the year preceding; 165 were Europeans, without a single death. Among Indians (1866) there were 13 deaths and 8 failures.

Sanitary Work.

With regard to progress in sanitary work generally the report is not very encouraging. "Although a few attempts have been made to improve village sanitation, they have not met with any great success. The chief obstacle to progress in this direction is the attitude of the villagers themselves, who evince scarcely any desire to change their habits and customs, and unless this barrier can be broken down no real progress will be possible. The rules framed by the District Boards of Ludhiana and Ambala, and sanctioned by Government for the improvement of rural sanitation, were not adopted in any of the villages in those districts. . . . In the Hissar district a sum of Rs.1000 was sanctioned by the District Board to help the villagers to carry out schemes of sanitation, but nothing of this sum was spent for the purpose for which it was allotted." No action appears to have been taken by the really responsible authority Colonel Forster remarks very truly that "village sanitation is not a subject to be dealt with by spasmodic attempts at by-laws and regulations with occasional doles. It requires to be regarded from a much broader aspect, and a note dealing comprehensively with the whole subject will be submitted to Government in due course."

An important advance has been made by the institution of a State Faculty of Public Health for the province, which will give medical graduates both the training and qualification which formerly required at least a year's residence and study in England. Progress is being made in the establishment of a Hygiene Institute at Lahore, and the creation of a bureau having for its object the education of the general public in elementary hygiene has been sanctioned. At the provincial pathological laboratory there was a large increase in work done, the total number of examinations performed being 2881, of which 1903 were examinations of blood specimens and 831 bacteriological investigations of various kinds. There has been some difficulty in obtaining a satisfactory water-supply for Ambala, which has a population of 25,000. The main trouble is that the soil is clay or clayey sand, therefore percolation wells gradually decrease in yield. At Sarangpur, about a mile from the existing well system, an attempt was made to take advantage of the horizontal extension of the sandy river bed, by laying a home-made strainer of large diameter in the sand about seven feet below spring level. "The making and subsequent laying of this strainer *in a quicksand* was very troublesome, and great credit is due to Lala Nand Lal, overseer, for the ingenuity and perseverance he displayed, and the way he stuck to his work in very adverse surroundings."

Dispensaries and Charitable Institutions.

The report on dispensaries and charitable institutions[2] in the Punjab for 1920, by Colonel R. C. McWatt, Inspector

[1] Report on Sanitary Administration, Lahore, 1921.

[2] Lahore Government Press, July, 1921.

General of Civil Hospitals for the Province, summarises an immense amount of work, clinical and statistical. During the year 39 new dispensaries were opened and three closed, the total number working at the end of 1920 being 540. The in-patients treated numbered 96,783, an increase of 3642 over the preceding year, the daily average under treatment being 3289, compared with 3378 in 1919. The out-patients numbered 4,512,863, with a daily average attendance of 26,613, compared with 4,737,770 and 28,273 in 1919. Malaria, cholera, and small-pox were considerably less prevalent, but rheumatic and tuberculous affections showed an increase. Influenza, though not epidemic, was present more or less throughout the year. The surgical operations numbered 250,568, performed on 239,444 persons; in 1919 these numbers had been 261,904 and 251,792. The mortality was only 0·20 per cent. in each year. There were 685 amputations, with only 8 deaths. As many as 19,412 lens extractions were performed, of which 95 per cent. were successful. For stone in the bladder, litholapaxy was adopted in 1855 cases (with 15 deaths), and lithotomy in 249 cases (with 6 deaths). Amongst other major operations may be mentioned liver abscess (121 with 2 deaths), appendicitis (22 with 2 deaths), abdominal section (93 with 14 deaths), and 354 obstetrical operations with 41 deaths, including 38 Cæsarian sections, with 11 deaths. A very fine record. "Assistant-Surgeon Rai Bahadur Mathra Das as usual heads the list in the province, with 13,001 operations, including 8102 for cataract, which beats his previous record of 1919 by 592." It is to be regretted that "there has been no notable improvement in the arrangements for medical relief of female patients, owing largely to the dearth of trained workers." Women subassistant surgeons, as well as compounders, are very scarce, and Indian women and girls are so far disinclined to adopt a medical career.

Lunacy Administration.

At the Punjab Lunatic Asylum, Lahore, the total number of patients under treatment has been 1346, 1217, and 1248 in the three years, 1918–19–20, respectively. The figure for 1918 is the highest on record, and Major H. W. V. Cox, I.M.S., who forwards the report,[3] compares these figures with the number (400) treated in 1900, when the asylum was opened. "It cannot reasonably be assumed that since 1900 there has been a steady general increase of insanity in the Punjab; . . . . the benefits of asylum treatment have become more widely known, and more patients are sent here, instead of being confined in their own homes." The average daily strength has been 876, 875, and 863 in the three years under report, and the average daily sick have numbered 82·74, 90·58, and 64·79 respectively; the chief diseases prevalent being diarrhœa (92 deaths), tuberculosis (59), influenza (47), pneumonia (29), and dysentery (22). The total death-rate has been 14·83, 10·51, and 12·63 per 1000 in the three years respectively, calculated on the average daily strength. The admissions during the period consisted of 557 Hindus, 489 Mahommedans, 31 Indian Christians, 29 European and Anglo-Indian Christians, and 10 "other castes." The largest number of admissions, according to occupation (230), was furnished by "military men from overseas." After these came housewives (150) and cultivators (121). The percentages of cure have been 22·93, 13·26, and 12·40 in the three years respectively, worked on the average daily strength. Major Cox remarks that "a correct average is vitiated, owing to the large percentage of criminal insanes, many of whom, though sane, are retained for long periods under observation." There has been considerable overcrowding, but this will shortly be remedied by the erection of a separate criminal asylum, and an extension to accommodate 24 tuberculous patients. We regret to learn that Major J. F. Fleming, I.M.D., who held charge single-handed from January, 1916, to February, 1921, broke down under the severe strain and became seriously ill, which necessitated his proceeding on sick leave. Colonel McWatt speaks of Major Fleming's services in very high terms, and also alludes to the valuable work of the Franciscan Sisters, which is "beyond all praise."

PUBLIC HEALTH IN TASMANIA.

THE annual report for Tasmania for 1920–21 contains much information of general interest. This State of the Australian Commonwealth has an excellent climate, a generally healthy stock, abundant food, and practically no poverty. The overcrowding and industrial employment of married women found in older centres are absent from Tasmania, and it might be expected therefore that its infant mortality would be exceptionally low. In actual fact it was 65 per 1000 births in 1920, as compared with 70 in New South Wales, 74 in Victoria, 63 in Queensland, 67 in South Australia, and 66 in West Australia. New Zealand maintained its supremacy with an infant mortality of 51. In the year 1919 this figure for New Zealand was surpassed by an infant mortality of 50 in the urban districts of Cambridgeshire, of 48 in the urban districts of Hertfordshire, and of 46 in the rural districts of the Isle of Wight.

Child Welfare Work.—The chief difficulty in this, as in general sanitary work, is associated with the sparse population of Tasmania. Dr. E. S. Morris, the Director of Public Health, paints an interesting picture of the difficulties of local sanitary administration. Satisfactory local administration "anticipates breadth of vision, business acumen, the capacity for weighing the merits or demerits of proposals of a technical nature," as well as other requirements; and evidently these qualities are often lacking in Tasmania as elsewhere. The entire population of Tasmania is below a quarter of a million, scattered over more than 26,000 square miles and controlled by 49 local authorities. The results are a superfluity of administrative bases, an unnecessary multiplication of scantily paid officials, and a large amount of indifference to public health work, until the urgency of an epidemic of acute infectious disease stimulates spasmodic activity. Except that the sparseness of population is much greater than in England, it is evident that the mistakes and difficulties of this country in realising good administration are being repeated in this part of the Commonwealth, and that unless larger units of administration, and a more completely responsible staff are secured, sanitary progress will be slow.

Venereal Diseases.—Dr. Morris is somewhat pessimistic in his view as to the efficacy of the measures at present adopted in Tasmania for the control of venereal diseases, and considering the nature of the legislative powers in force this view has importance. During three successive years the number of cases of venereal diseases notified has been 366, 488, and 419. By a curious coincidence the number of patients treated at the three hospitals at which publicly organised treatment is provided was also 419, but this number has no necessary relation to the same number of new cases notified during the year. Cases not treated at the hospitals were under the care of private medical practitioners, who are paid by the Government Department of Public Health for their services on poor patients living in a district where clinic facilities do not exist. The fundamental pivot of the Tasmanian "Venereal Diseases Act"—viz., anonymous notification—is, he concludes, unsatisfactory, if not useless. It places the primary responsibility in the hands of the medical profession, "who, so far as I can judge, consider the whole Act irksome and of little benefit." A great majority of doctors are stated to refuse to treat these cases, and those who do accept this responsibility find the necessity for maintaining records, forwarding reports, and keeping in touch with the patients a serious undertaking. One section of the Act requires a medical practitioner to notify the Public Health Department of the Central Government the name of any person who leaves his care and does not place himself under another medical man. Last year nine such notifications were received, and orders were issued for them to return to treatment. The results were unfortunate for the original medical advisers, some of whom were roundly abused, and it is scarcely surprising that they have signified their intention of refusing to obey the law in this respect in the future. Dr. Morris forecasts that this important part of the Act will slowly but surely become a dead letter. His further remarks on this point deserve quotation, as they illustrate also the difficulty in securing the second object of notification—viz., the tracing of foci of infection. "Notification was thought to be the means of enforcing effective treatment, but . . . it will be seen that many side issues combine to make this extremely difficult of realisation. It was anticipated that notification, even though anonymous, would facilitate the tracing of the sources of infection . . . (by declaration of the treated patient). Experience shows that this hope does not materialise, except in a few very rare instances." Some part of this failure is ascribable to the fact that commercialised prostitution has scarcely established itself in Tasmania, promiscuity to the extent it occurs being chiefly clandestine and non-commercial. Dr. Morris, nevertheless, thinks that the action already taken has been useful in paving the way for more efficient means, still to be discovered. Each case treated is so much to the good, even though there may be a large reserve of infection untreated and uncontrolled.

The enactments already on the statute-book include one making it illegal for a sufferer not to obtain treatment, but evidently Dr. Morris has fears that the public soon learn the impotence of authorities if the case is kept secret, and that the enactment has a tendency to drive patients into the hands of illegal practitioners. Dr. Morris, although agreeing as to the desirability of preventive treatment, is unable as a citizen to advocate it, in view of the social difficulties of action in this direction; and he finally stresses the importance of more extensive educational propaganda. This should include not only a knowledge of sex, but moral training in early life.

There is much that is both interesting and instructive in the experience of attempts to enforce notification and

[3] Triennial Report, 1918–20, Lahore Government Press, 1921.

compulsory treatment, in a community in which the most recent thought on the subject has been embodied in legislation, and in which administrative action based on this legislation has been essayed.

MEDICAL CERTIFICATES UNDER THE LUNACY ACT.

THE Minister of Health was recently asked in the House of Commons upon what grounds the Board of Control had on four occasions deprived a registered medical practitioner skilled in mental illness of the right to sign a certificate of sanity as prescribed under Section 49 of the Lunacy Act, 1890. Sir A. Mond stated in reply that under Section 49 of the Lunacy Act, 1890, the Board of Control have full discretion to authorise any medical practitioner to visit a patient for the purposes of the section. In the exercise of their discretion the Board endeavour to select medical practitioners who are, in their opinion, best qualified to act. The mere fact, he added, that the Board have not selected any particular medical practitioner whose name has been submitted to them is not to be construed as defamatory.

CRIPPLING LIMITATIONS.

LAST week the newspapers recorded the stimulating circumstance of a boy of 14, crippled as to his left leg from 4 years of age, and with this leg in a plaster case as the result of recent operation, who successfully went to the rescue of a comrade who was swept into the sea. The incident is a striking illustration of a principle to which allusion has often been made in these columns—namely, the extent to which a physical disability can be made good by functional training. A good contrast is obtained in the report the same day of an action for damages by a lady on account of injuries to the nervous system contracted by a fall on shipboard, when Sir John Collie, in reply to counsel, made the sardonic reply, "The verdict of the jury, one way or the other, will cure the lady." Incidentally, an attempt made by the cross-examining counsel to disconcert this expert witness by a suggestion that this was his stock remark in such cases, made on frequent previous occasions to himself, led to counsel's discomfiture, for a question by the judge as to the complaint from which counsel was suffering led to the rejoinder "Delusions," the neatness of which is worthy of record.

EARL HAIG'S APPEAL FOR EX-SERVICE MEN.

THE anniversary of the British declaration of war in 1914 having again come round, Field-Marshall Earl Haig reiterates his appeal on behalf of the scores of thousands of deserving cases of hardship among ex-Service men and their dependents which are not covered by Government provision. Last year Earl Haig pointed out that at least £1,000,000 would be required to enable the British Legion to deal with these cases, and the sum collected fell far short of that total; he now asks that in addition to such gifts as are appropriate to this anniversary, as many as possible of the citizens of the country, and especially business firms, should join the Great War Remembrance League. Cheques and postal orders should be made payable to Earl Haig's Appeal, and sent to Earl Haig, c/o, Sir Herbert Brown, K.B.E., British Legion Appeals Office, 1, Regent-street, London, S.W. 1. Applications for membership and inquiries concerning the Great War Remembrance League should be sent to Captain W. G. Willcox at the same address.

OVERCROWDING IN MANCHESTER.

IN a recent address Councillor Mellor gave an account of some striking examples of overcrowding in Manchester. He said that of the 152,000 houses in Manchester, 100,000 were let in pre-war times at rentals of not more than 8*s.* a week; the majority were ugly, insanitary, and inconvenient. Not 10 per cent. of these houses contained baths. The relation between congestion and death-rate was shown by the fact that while the average death-rate in Manchester generally was 13 per 1000, in Withington, with 10 persons to the acre, the death-rate was 11, but in the Manchester townships of Ancoats and Hulme, with 130 persons to the acre, it was 27 per 1000. In Withington 79 children per 1000 died under one year of age, in Ancoats and Hulme the corresponding rate was 275 per 1000. Before the war the number of inhabitants in the Manchester houses was 4·7 and there was no serious overcrowding at that time; to-day the conditions were abominable. Councillor Mellor quoted some examples collected by school attendance officers in the city showing that venereal disease had been contracted by innocent parties owing to overcrowding The corporation had no power to interfere with the internal arrangements or control over houses with a rental of more than 8*s.* a week. In one 10*s.* a week house 19 persons were living, and every room, including the kitchen, was slept in. Councillor Mellor estimated the number of houses required by Manchester as within measurable distance of 50,000.

MEMORIAL TO THE LATE DR. E. MANSEL-SYMPSON.

Archdeacon E. M. Blackie recently unveiled a tablet in the chapel of Lincoln County Hospital to the memory of Lieut.-Colonel Edward Mansel-Sympson. It bears the inscription: "Edward Mansel-Sympson, J.P., M.A., M.D., F.S.A., Lieut.-Colonel R.A.M.C. (T.), for nearly thirty years surgeon and consulting surgeon of the County Hospital. 15th January, 1922, aged 61." During the war Dr. Mansel-Sympson was attached to the 4th Northern Hospital.

ASSOCIATION OF CERTIFICATED BLIND MASSEURS.

THE annual report of this Association for the year ending June 30th, 1922, shows that its efforts to secure the recognition and status of certificated blind masseurs and masseuses have met with considerable success. The first President of the Association, the late Sir Arthur Pearson, was succeeded as President in January, 1922, by Sir Robert Jones. Under a new arrangement the Association receives a definite grant from St. Dunstan's and the National Institute for the Blind, in recognition of the work that is being done. The total membership is now 168, comprising 95 blinded soldiers, 34 civilian masseurs, and 39 masseuses. All these members are fully qualified and hold the recognised certificates of the profession. During the period reviewed in the report 61 cases have been allocated to members by the secretary of the Association; this function of allocation renders the Association especially valuable in the matter of employment. An official organ, the *Massage Journal*, is published monthly in embossed type, and a special feature is made of lectures and articles by well-known medical men. It is stated in the report that the earnest desire of the Council of the Association, in the formulation of different schemes, is at all times to work under the supervision of the medical profession. It is hoped that the qualifications and experience of its members will be professionally utilised to a greater extent even than heretofore by medical men.

"HANDBOOK FOR THE LIMBLESS."

WE have received from the Disabled Society, 48, Grosvenor-square, London, W.1, a handbook which contains a great deal of information as to the rights of amputees and as to how to obtain the same. It also gives useful directions as to the use of prostheses and as to the steps that should be taken for their repair and renewal. We cannot but think the title unfortunate. To call men, of whom the vast majority possess three limbs, "limbless" is incorrect. The sections on sports are of considerable value and should encourage pensioners to persevere in their efforts to take part in the amusements as well as the labours of life; it will help them not to give way to that depression which mutilation is too apt to produce in some minds.

The sole aim of the Disabled Society, as stated in this Handbook for the Limbless, "is to put its members in the most favourable position for taking their place in the normal life and pleasures of the nation by insuring that the most suitable limbs are supplied to all." In pursuing this laudable object the society is evidently in many respects taking upon itself some of the duties of the Medical Services division of the Ministry of Pensions. The criticisms, however, which it has not hesitated to offer on the actions of the Artificial Limbs section of that division have undoubtedly had a good effect in stimulating official procedure.

This pamphlet is published at 1*s.*, which is less than cost price, so as to bring it within the reach of all; and Mr. John Galsworthy has contributed a foreword.

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